DoE reply on **US** minis

ONE of the two MPs who wrote to the Department of Employment about its purchase of USbuilt minicomputers and print-. ers from Interdata rather than Digico for disseminating job vacancy details in London and Glasgow (CW, August 11) has received a reply from the DoE.

In its letter to John Wakeham. Tory MP for Maldon, Essex, the Dož pointed out that Interdata's parent company, Perkin Elmer, has manufacturing establishments in the UK which employ about 700 people building laboratory equipment.

French Bill

THE draft Bill on data protection prepared by the French Cabinet last year (CW, July 22, 1976) is now being scrutinised by the French law commission. The Bill will be presented to Parliament early next month.

TSB finalists

FINALISTS for the major contract to replace the 2,000 or so terminals used by the Altrin-cham Group of Trustee Savings Banks are resident supplier Olivetti, together with Burroughs, Datasaab and Philips. Univac is to supply an 1100/82 mainframe to replace the ICL System 4 mainframes at the centre of the network (CW.

Japan sells to Iraq

IAPANESE sources say that Toshiba has sold a mid-range Acos 77/600 mainframe to Iraq. The Acos 77 line is based on Honeywell Level 66 licences, and the 600 is comparable in power to a 66/40 or 66/60. The sale suggests that Toshiba is prepared to compete with Honeywell in the Third World countries.

> n REDEMPTORIST PUBLICATIONS of Chawton in Hampshire, Catholic publishers and booksellers, are pleased to report the Installation of a B.C.L. Molecular 18 Mk 111 computer that has been delivered exactly on time and in accordance with contract.

The Management Board of Redemptorist Publications, who have been previously using a V.R.C., wish to express their sincere and grateful thanks to BUSINESS COMPUTER (SYSTEMS) LTD., of Portslade in Sussex for the way and manner in which the equipment has been installed and commissioned; their experience and professionalism has resulted in a total problem free start. Our thanks also go to B.C.L. for the time and energy that has been spent in determining our software needs and upon the work completed on the system design and programme specification—in

our experience this has been superbl INDUSTRIAL MAINTENANCE SERVICES IS also thanked for the excellent job that they did in preparing our accomedation.

A lesson for all FIRST TIME user based to mouter users is that you will have to go a long way to butter this experience!

This unsolicited advertisement is wholly paid for by Redemptorist Publications.

Who cares about computers?

THE general public is overwhelmingly indifferent to computers and their effect on everyday life. Or, at least, the French public is. everyday life. Or, at least, the French monthly for in a survey by the French monthly magazine Ordinateurs, well over helf those interviewed were "don't knows" when questioned whether computers were useful,

Northants Bureau team

wins CW five-a-side cup

WE are the champions ... This 1-1. Crane drew with British

team from Northamptonshire

Computer Bureau won the

Computer Weekly Cup in a five-a-side football knock-out

competition for teams of data

processing staff from installa-

In the first round, played on a

league basis, Northamptonshire

Computer Bureau beat British

Timken 2-0 and drew with Crane

tions in Northamptonshire.

questioned whether computers were useful, useless or dangerous in areas like education, medicine and privacy.

The first two questions were almed at finding out how familiar people were with computers, and the answer was "not very." Only 7 per cent said they had seen a computer working, 54 per cent said they had not, 17 per cent thought they had, and 22 ner cent did not working, 54 per cent said they had not, 17 per cent thought they had, and 22 per cent did not know. More had seen a terminal, but here

again it was only 14 per cent.
Ordinateurs wondered if many of the "horror stories" told shout computers were merely due to the fact that few people knew what one looked like.

people made of computers at work. Only three per cent said they had anything to do with per cent sate they had anything to do with computers every day, and seven per cent said they were involved frequently. A massive 81 per cent said "never" or "don't know."

More than half were again "don't knows" when saked if computers were useful to their job. About 18 per cent thought computers were useful and 14 per cent useless. The survey found that younger people tended to think the computer was useful, while the older ones tended to think of the computer as a

threat to their jobs.

The two per cent who thought computer were dangerous were mainly women.

A high percentage, 74 per cent, answered his percentage, 74 per cent, answered "never" and "don't know" on the question of whether their private lives were affected by computers. But 13 per cent said they were affected, giving computer printed bills as

examples. And only seven per cent thought computers useful in their private lives while 23 per cent thought them useless. The majority, again, were indifferent.

The last four massissipport.

of computers on different areas of life. Computers were seen as useful to humanity by 23 per cent, and useless by 10 per cent; seven per cent thought them useful in health, six per cent unless and seven per cent dangerous; and nine per cent thought them useful to aducation, 18 per cent usaless and 11 per cent

Ondinateurs summed up the survey saying.
"We must humbly conclude that the public is
little concerned about computers. This is al, but at the same time worrying: normal normal, but at the same time worrying normal because the computer is only a tool, worrying because public ignorance could allow the growth of dangerous ambiguities such as those alroady surrounding nuclear energy."

protection authority in the

country where the processing is

dustry has aired its views, the

Council of Europe is meeting

this week to consider a draft

international treaty which could

lead to certain minimum protec-

tion standards around the world.

Don't let its quiet good looks

ing your tune.

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Tell me more about Kode Data Entry Systems:

Printed in Great Britain by Q.B. Limited sheeten to CO3 3L.J. and published by IPC Electrical Electronic Dorsel Floure, Stamford Street, London, Scientific Street, London, London, Scientific Street, London, London, Scientific Street, London, London, Scientific Street, London, London,

Now that the computer in-

carried out."

OECD call to control data use THE emphasis of legislation protecting personal data should be on the use of the data

rather than the actual processing. This view was put by UK speakers at an international conference on trans-border data flow, organised by the Organisation for

Economic Co-operation and Development in Vienna last week. "The collection and storage of personal data, of itself, harms no one: only when it is used should we become concerned," said David Firnberg, director of the National Computing Centre. "Therefore it is at users that legislation should be directed."

Alan Benjamin, director-general of the Computing Services Association, said control of the use of data gave protection against unauthorised new uses, provided protection regardless of where the work was done and, above all, was enforceable. Benjamin called for the setting up in each country of a statutory body which would issue licences to end users for specific uses of data.

Benjamin added that the authority should also grant certificates of security to organisations running computers. But, he went on, "Laws which attempt detailed regulation in a fast developing environment will be subject to technological rance of quality from the data

One reason for having a licensing authority was that the general public would find such a body reassuring, said Benjamin.

Firnberg said that it was vital for countries to reach international agreement on data protection legislation.

"But legislation for controlling disclosure of data varies enormously from one country to another. This will become a major obstacle to data flow and communications unless we can The final was a 7-1 rout of harmonise national programmes and agreement on International standards."

Harmonisation is certainly needed to support one of Benjamin's suggestions: "Before issuing a licence to a user, the data protection authority shall be required to satisfy itself that the processing will be carried. The competition, which attracted 23 teams, was organised out to an acceptable level of by an Avon programmer, Alan security. In this task the authority may accept the assu-

CII-HB to build Level 6

IN what is seen in part as a defensive move against possible nationalisation of CII-Honey-manufacture the three models in well Bull in France, Honeywell is the 6/30 and 6/40 lines at its planning to extend the power of the Level 6 minicomputer line to match most of the French-built Level 64 series. The company plans a Level 6/50 series, which like the 6/30 and 6/40 will have substantial software compatibility with the US and Scot-tish-built Level 66 mainframe

Timken. Northamptonshire

Computer Bureau beat Anglia Building Society 2-1 in the

quarter final and Avon Cosme-

The cup was presented by

Billy Best, player of the year at

Northampton Town. The team

was (back row) Dave Farrer,

John Archer and Paul Geagan,

and (front row) Phil Mackay and

tics 2-0 in the semi-final.

Meanwhile CII-Honeywell Bull has announced that it is to substantial multi-year contract for minis with the leading French manufacturer SEMS, but the decision to build the US-designed minis in France will make life harder not only for SEMS but also for the other French minimakers, Intertechnique and

IBM 370/145 for lease

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language to be used for a projects in the US and

services, the DoD selected?

candidate languages. Algui

PL/I and Pascal, to serve

base for the planned languand requested detailed props.

Unexpectedly, all prop-

selected for implementa

based on Pascal. The succe.

candidates are Cli-Hospi

Bull, the Stanford & Institute of Californ (*)

Softech and Intermetal

software houses with 1

standing record of work!

government departments
Pascal is a highly stru

Algol-related language.

Zurich on the basis of

collaboration with the Professor Tony Hoare

. . is sweet and low fro

the versatile DataVet Data

Entry System.

The Music...

(CW, March 24).

THE Soviet Union has agreed to accept an offer from Control CONTRACTS for the dent Data for the joint development ment of prototype comples?; the US Department of Defect of an advanced scientific computer. The agreement was made following a conference at the Academy of Sciences in Lenin-grad, which is the centre of the planned standard real to: language have been awards with a double disappointe for the UK.

Three of the four control According to Soviet computer expert Professor Mikhail Ignahave been awarded to put; US-based developers, with a tiev, this system is to be built on in the direction of Europe t 'new technological principles' the UK's last candidate that could greatly outperform base language. Algol & been effectively excluded existing systems. He calls it a "recursion computer." Following publication "Ironman" specification

The proposal is likely to be closely scrutinised by the US government, which recently veloed a bid by CDC to sell a Cyber 76 to Russia

FERRANTI

Briefing

Soviet project

Joint CDC-

More on CDC in Russia —

One-day strike

A ONE DAY token stoppage by ASIMS members at Laporte Industries, Redhill, last week followed the non-payment of an agreed 5% Phase 2 Increase. A mpany spokesman said that the payment was delayed because of staff illnesses in the DP department, but added that actived back-pay would be fully paid at the end of this month.

2950 pre-sell

FORMAL announcement of the 350 is expected by the end of November, It is understood that ICL is already pre-selling the sistem in international markets, cluding South Africa.

fim go-ahead

THE recent multi-machine order for GEC 4080s from University College, London, has been followed with two more significant GEC sales, including one to the south western universities Joseph Mestern universities which have just received the solution of the system to replace tasing ICL System 4 machines. More details — Page 3.

A Peripherals launch

ACOMPLETE range of peripherals for IBM Series 1 minicom-Control Data within the next to months. The range will a third matrix and line printers. Meo terminal, disc drives and

asties. The centre will act as ation, development istomer support location, represents the company's dg attitude towards the

Number 570

Tektronix diversifies data loader, which allows the loading of an existing bulk data

MOVING for the first time beyond the provision of hard-ware, Tektronix has introduced a inite Element Modelling package that can be run either online or offline from a host computer, and can format model data into a compatible form for all finita element analysis software avail-

Developed to run resident on the company's 4081 interactive graphica terminal (CW February 3), the package has been designed specifically for applications in atructural analysis in mechanical analysis in mechanical analysis and statements. and civil engineering. Called FEM 181, it can operate in any one of four modes: se a dumb terminal operating directly online to a host computer, as an intelligent terminal, as a workstation operating offline except for number

element generation and editing in three dimensions, and the third is a bulk data formatter, which allows model data to be formatt ed into a card image file that is compatible with the particular linite element analysis package to computer, the package allows the user to rotate through three axes,

source for editing purposes. The second section is the model generator, which allows node and

zoom in or out on assigned sections, produce cross-sections, and produce herd copy print-outs of the display, it is also possible to obtain a status report on the modelling process at any time. crunching, or entirely standalone, with no interaction with a host computer.

The package is constructed in a host computer.

The package is constructed in three main sections. The first is a dimensional rotation.

ICL staff rush for shares

STAFF at ICL have firm faith in the company, judging by the number of applications for

Racing driver Davina Galica (pic-tured right) and boxer Henry Cooper will be vying for attention with the latest aystems and

equipment for the automated office at the international Business Show

in Birmingham hext week. Computer Weekly peeks into the office of the future and provides a teste of

IBS things to come, Pages 15/18

DATABASE PUT DOWN Larger scale database software is never economically justified ac-cording to Gilbis mythodology.

WHITHER THE BCS?
Malcolm Palty Interviews new BCS President Professor Paul Samet and Computerview asks Who would cry fritis BCS should die?

Pages 2 and 14

IN TOP GEAR

shares. The company is offering 12,000 staff 2.5 million shares, or

speed and accuracy of your off-line data preparation.

Whatever your needs, from basic validation to ICL Basic new British Othello chamTerminal emulators with high quality printing, Data.

Joseph Woch Calendary ka Joseph Woch, takes on a teleit-Packard computer at page this weekend. Peter inning in the mechanical ring department at 4 University, has written a gain in Basic for a Hew-Packard 9830 and for a 2000. tays the computer always [Popel Tell

RETAIL systems centre has an opened by ICL in Arlesey, exidendshire, to cater for the existing retail and distribution dusting. The control of the control o



17%% of the issued share capital, over five years (CW, August 18) and when the first million were offered there were applications

This rate of response is believed to be much higher than any other industrial company has experienced in similar

The shares were offered on August 25, when ICL shares were worth 201p. On Monday of this week the shares stood at

THE MICRO ERA

OMPUTER WEEKLY'S INSIDE NEWS

Newbury, Berks. Thursday, October 6, 1977 Price 18p Tel. Newbury (0635) 46898

MPs call for benefit fiddles check A CALL for greater use of computers to "We stress the importance of taking all

cross-check social security information has come reasonable steps to ensure that there are no from a watchdog body of MPs in an investigation categories of cases where appreciable and of overpayments of £10.8 million social security avoidable overpayments are occurring. We therefore urge the departments to pursue their The Committee of Public Accounts, in its report on the overpayments, says the main safeguard taken of the facilities offered by computers to against fraud and mistakes is a check of details cross-check and supply information to the point at given by benefit claimants.

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Visual Display Terminals

RESULTS OF CW SURVEY...

Doubts on IBM sales boom

IBM 3033, 3032 and 3031 systems, could be smaller than expected in the UK m - at least for a year or two. That is the broad conclusion of a Computer Weekly survey of a dozen large-scale BM users, taken just before this week's expected public announcement of the 3032 and 3031X (CW, September 29) and news of the first UK order for the Itel Advanced System range of IBM processor replacements (see below).

ed to be announced this week after Computer Weekly has gone to Press.

The 3030 series of machines appears to have arrived at the

Unilever

FIRST UK order for an Itel Advanced System has been placed by Unilever Computer Services Ltd.

The bureau has selected an Itel AS/5-1 in preference to an IBM 370/158. The AS/5 is now being installed at UCSL's centre at Burgess Hill, Sussex, where it will be upgraded to an AS/5-3, years," said a spokesman. equivalent to a 370/158-3, early in 1978.

The initial configuration will have a two Megabyte main memory and 16 200 Megabyte Itel disc drives. UCSL says that its decision to buy from Itel was formance, and involved extensive comparative studies. UCSL said that it was interested in IBM's 3032 replacement for the 158 but was not prepared to wait

for delivery.
UCSL already has three IBM 360/65 mainframes, one at these will be replaced by the Itel

ALSO

Focus on small systems. £1 m for universities

New CSA president Latest in computer crime

Puzzler Softwere File

Diary dries
Op Spot
United policy on privacy
Letters to the Editor

Miproprocessor news
Interview with new BCS chief
Viewdets open to competition

APPOINTMENTS:

PAGES 19-39

Programmer Notes People in the Nows

The 3032 and 3031 are expect- wrong moment in the development cycle of most of the installations contacted by Computer Weekly, and, at this stage, none would go on record as saying that they were planning to place an order, even just to get in the

Lloyds Bank placed an order for four 370/168s about two years ago, and took delivery of the second two earlier this year. As a committed IBM user, the bank might have been expected to switch its 168s to 3033s, but

has no plans to do so for some "We are in the middle of a monumental transfer plan with the move into our new Bankside computer centre, and we won't be looking for any change of mainframes for at least two

When we do start looking, Turn to page 11

- Description of the state of t

111-24-6-81-411-6-8 Computer salesmen are at the

hard edge of the computer business and from this week they have their own special spot in Computer Weekly — on the inside back page. Turn to page 39 for the first Sales Bit by The Trader, a man with a

wealth of selling experience. Operators have had their regular CW Op Spot for meny months now, and this week Bernard Alien takes over this regular feature. Meet Bernard on page 11.

Also: Chesslab P4

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bar code reader, is speeding the analysis of motorists' blood sample: submitted for alcohol tests at the Metropolitan Police forensic science

aboratory. The bar code reader reads information about the sample while

it is being analysed, and the two sets of information are sent to

minicomputer. This produces a report which is used in court.

COMPUTER WEEKLY Vol. 23 No. 570

Thursday, October 6, 1977

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evallable, for 40p post free.

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Who would cry if the BCS should die?

supposed to be the body reprebut it has failed to establish unequivocally that there is such a thing as a computer profes-

And in recent years, beset by financial problems, the BCS seems to have lost its way.

Its commercial activities, like the Datafair conference which ends today (Thursday), could have been organised by any commercial, rather than professional, body and its "technical" activities lack the vigour of the late sixties and early seventies when Datafairs were more the British forum for technical and activities like the Advance Programming Group conferences on Databases and Job Control Languages were mile-stones in their fields.

This week's Datafair has had an interesting theme — The End User — and an imaginative programme. But it has little that uniquely identifies it as an event to be associated with a professional body. Commercial conference organisers, like Infotech and Online, are constantly organising events of a similar

survival for the BCS has also led to that fear among some BCS members that it should not become too associated with the

But the BCS, as a professional body, is nothing if it is not BCS will be crucial. academic; if it is not concerned

THERE was once a happy bug enthusiast who, by dint of

intelligent application to his

studies during his early years, had arranged his life so well that

he spent many blissful summer

hours romping over the fields

around his university with a

butterfly net and a cine camera.

fascinating film . . . of ladybirds

zooming low over beanfields, of

thrips and gnats dancing in the

hot summer evenings, etc.

During the winter months he analysed his films, studied the

flight mechanisms and

developed his theories and his

models. He built a tank to model

the action of certain insect

wings in flight. An experimental

He had files labelled:

GREENFLY, BLUEBOTTLE,

was his theory. BBC's Horizon

DADDYLONGLEGS...

He shot miles and miles of

By their very nature, these techniques are, of course, concerned with the "end user," just as the medical profession is primarily concerned with curing

In an interview with Computer Weekly (page 14), Professor Paul Samet quite rightly questions the validity of the terms "academic" and "commercial" when used in relation to BCS

The distinction, as he points out, is more between those involved in the development of computing techniques and those who apply the techniques. And Professor Samet is to be commended for recognising the contribution that each side can make to the other.

But surely it is time that the BCS once again unashamedly put the accent on "techniques rather than the applications side. Organisations like the National Computing Centre and Data Processing Management Association have a more specific

"user" role. In the long run, if the BCS is to grow in influence and in membership it must define for itself a far more consistent and bolder approach.

It should also try to move away from an overdependence on adapting its public image annually to the character of the

The next few years for the They now have the money to

became interested. They bought

his films and visited his

computer system for a special

filming session . . . The lights were bright and warm in the old

faculty basement. The computer

LEDs became a high-speed blur,

the model wing began to "flap,"

All eyes were agog. The cameras whirred. The technicians were

hushed by the presence of

Quite suddenly, there was a

loud buzzing sound. A large

bumble bee, awakened from

winter slumber by the bright TV

lights, began flying rapidly in

tighter and tighter circles above

the tank, Finally, it made a dive

and in its death-throes churned

up the fluid around the feedback

business machine could be dangerous. The DPM could well trip over several assorted micros and minis in the process. For once, the current crop of to processing long name/add-computer exhibitions have got ress runs on to sticky labels.

STANDING back from the small

immediate threat of financial

membership must grow sub-stantially. To do so it must

clearly show that it has a unique

and valuable role to play in

In the branches and specialist

roups; committees and work-

But if the BCS died tomorrow,

Manufacturers would con-

would it in any way affect future

ng parties, the BCS has already

achieved a great deal and made a

major contribution to comput-

But if it is to prosper, the BCS

disaster has been removed.

the theme right. All concentrate on "Thinking Small" - a true reflection of the current DP marketplace. In fact this particular market is only small in its product. Otherwise it is impressively large and threatens DPM's would agree that small business systems do not grow:

approved parallel mode. there are now numerous training and education sessions concentrating on getting the best out of the users' small business system, the best in this case being as much as possible plus an optimistic margin. Any day now, a protection society will have to be established to defend the small system from abuse. Perhaps known as ISM, Institute of Small Machines, the objectives will (in keeping) be limited in size: to protect the mini or micro system from abuse, misuse and general

Unlike their larger comrades. small business machines are expected to continue operating through thick or thin - or rather heat and cold, in conditions which most self-respecting mainframes would hesitate to tolerate and would quickly blink

raged; nor putting it in the centre of a draughty passage.

Often the siting considerations

are limited to the proximity of a

Mainframes, in comparison

have a sheltered life. The slightest indication of an ail-

ment brings a large dose of

attentive servicemen. Preven-

tive maintenance is logged and

monitored even more closely

than the operators' shift allow-ance All this plus an environ-ment which would be the envy of any medical laboratory.

suitable power plug. "

their way to a halt. The Institute should aim to The computer halted the experiment and sat quietly for a promote an attitude among while, evidently "thinking the small machine. It should Finally it typed a brief message on the operator's teletype: "BUG emphasise that the occasional SOMEWHERE," it said - and wipe-down with an anti-static returned to command mode. rag does not constitute an MORAL: Regarding bugs, acceptable maintenance routine. Accommodation also usualwhatever you does, be sure to ly leaves much to be desired. It should be suitable for both

remove the ones that buzz. ADDYLONGLEGS. . Submitted by John Davidson, of Graphic Display Systems, Cambridge, who receives this week's £5 Interrupt operator and machine. Siting the small machine in an isolated alcove or behind the stationery cupboard, should not be encou-

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COMPUTER WEEKLY OCTOBER 5, 1967

LONDON University ordered a
CDC 8600 with a 131k menery
of 60-bit words. Rental wa
eatimated at £500,000 a pur
. Lord Bowden, principal of
Manchester institute of Science
and Technology, in a speech a
Datafair 67 called for a nel
policy for computers . . 0, W.
Barlow was appointed meneing director of English Electic
Computers . . A lowest
bridge between an accounting
machine and a computer was
univelled by NCR . . Proposed
takeover by GEC of AEI ribed
questions as to the future of acbuy a new headquarters and the would continue to end use, programmers would continue to Could one say that the quality of all those activities would diminish if there was no BCS? That there would be no strong impetus to improve techniques and standards without the BCS?

uestions as to the future of the should be that, without the BCS two companies' computer dy-sions . . . Honeywell introduced the H125 and H1250 in the the standing of the computing profession would drop. Series 200 family ... A speak security code will be used by Scanning and Data Preparate Ltd in high speed transmission tests between its Londonomy At present, however, the BCS would be hard put to argue this case. Its future policies should aim at vigorously demonstrating the unique value of the BCS and and London offices. attracting a large number of

The answer to those questions

attempt to operate in a databank

mode. Processing an historic

record print run will result in the

machine featuring in the com-

pany's historic cost accounting debt.

LA-36 DECwriter II

E 1090

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Decwriter III

Decorinter

Decscope VT50

Decscope VT52

ing near sincer to hoom we our or stell of land and the

As an urgent task, the instra The new Institute must give top priority to educating the user. Despite what the sales

machines are not totally suited to the operator, The system should not be used as a chess-lab except a Gumming-up the works will be ly, the small system should not

Peripherals at cash and carry prices

until they have passed it aptitude test. Only then will the rbusiness system have a !...

● Coffee supplies to be lim × . literature might suggest, small

TELETYPE Model 43

new 30 ops printer

 Untrained operators sho. not be allowed near the mit.

Interactive ICL now has world rights for TPS Cobol on inforex

MULTI-USER Interactive Cobol is one of the most important features of the Inforex 7000 terminal system which has now been introduced to the UK market after being launched in the US early this year (CW,

January 27). John Evans, managing disses that the 7000 is not a small business system but was designed and evolved for distributed processing, John Evans and will be

sold as such. Data entry, file management and data commu-nications, as well as data processing, can be handled isly by the 7000, although data entry will be the most important function at most

A 7000 configuration comprises a master display terminal containing the CPU which is a 16-bit microprocessor, and up to seven local or remote slave terminals. These can be either displays or serial printers. A virtual memory feature handles dynamic memory management of non-resident systems and user whware and provides each user with 200K bytes of storage on a l mand paging basis.

inforex points out that the 7000 software is designed to support high-level multi-user interactive Cobol. This can be applied in real time so that data can be processed as it is being keyed by the terminal operator. Other users' Cobol programs can be executed simultaneously. ters are expected to be installed

by 1979. The network now includes a 128K byte GEC 4070, installed at Bath and acting both as an interface between the existing network and new mainframes added to it and as a system for converting from System 4 protocols to internationally standard protocols like X25 and

continue to sell TPS for these machies

alongside ICL, and will retain sole rights

Telecomputing has gained its first client with a 2960 DME system, Dobson

Park Industries, of Wigan. The software

house is already committed to catering

for native mode 2900 with a product

user, terminal and application program

interface characteristics of TPS while

to the product on 1900 machines.

using standard 2900 TP software.

for a 4070 has come from Manchester. The machine will act as a front end communications processor to the regional computing centre's combined Control Data 7600 and ICL 1900 configuration and will also serve as a gateway to the Post Office's experimental packet switched service for the 30 universities which access the Manchester

than on the 1900 series.

The 2903/4 sector of the TPS market is ICL sales. Telecomputing expects consibecoming increasingly important, and derable opportunity for follow-up sales of the TPS Advanced Terminal and Direcproduct's 60-plus users. ICL appears far tory Access features of TPS, to which it more interested in obtaining a share of has also retained rights.

ICL, by marketing TPS for the DME the TPS market on its newer machines environment, could be setting itself a But, as Telecomputing's director Bernard Panton told Computer Weekly, problem with its 2900 users. On transferring to VME/B or K, these could 'We want to be left with exclusive rights see a move to TPS Care as preferable to entirely ICL software, unless ICL produces a suitably straightforward

in some sector of the market." Apart from its own sales of the main

TPS software, and royalty income from conversion aid.

£1m allocation to SW universities

The agreement with Telecomputing called TPS Care, which preserves the

UNIVERSITY computing in the south-west has been given a boost with the allocation of over £1 million to Bath and Bristol universities for interactive facilities to replace their old ICL System 4 computers.

teleprocessing monitors for ICL machi-

nes, Telecomputing's TPS, has been taken up by ICL for marketing in the UK

This puts users in these countries on a

par with those outside Europe, to whom ICL has been supplying TPS for almost a year (CW, November 4, 1976).

gives ICL non-exclusive world rights to supply TPS for use on ICL's 2903 and 2904

machines, and on the larger 2900s

A GEC 4070 is also to be installed as an interface processor in the south-west universities' network.

Bath and Bristol are working out the best way of spending the money. Dr Alec Nichol, at Bath said the universities' would probably install separate machines, although a single computer at one site had not been ruled out. A number of manufacturers had been invited to tender. Dr Nichol said that although

the batch processing needs of the region were well met by the ICL 2980, installed at Bath as a central facility for the universities in the area, there was a shortage of interactive facilities especially for teaching. The Bath and Bristol computers initially would also serve Cardiff and Exeter, which also have System 4s, and if that arrangement was successful it could become long term. If the load was too great, however. Exeter and Cardiff would probably get their own

^{Alter}go buys Consort package for inflation accounting

YET another of the consultancy activities of Altergo has been given ils own specialist division, this time as the result of a takeover. Consort IMIS, a company specialising in financial applications software, is now to be known as Altergo financial Management Systems. Consort was founded in 1971 and its main areas of activity have been in planning and budgeting consultancy. An out-come of this is Budget 6, a package designed to help the accountant or financial director

with budget and cash-flow Budget 6 will form part of ltergo Financial Management

on fixed assets. Spiral was developed by Altergo's Business Systems division. Both packages are designed

for IBM equipment. Budget 6 will be converted for IBM's System 3, System 32 and 34 and, Altergo was one of the first UK firms to take an interest in this

The new division will also take over much of the financially-oriented consultancy previously handled by other Altergo divisions. Some clients have aiready been gained.

The division will employ Systems' package repertoire, Consort's existing staff, and will be complemented by be headed by its managing spiral, an appropriately titled director, Hugh Wingfield-Hayes.

The happy managers

MANAGERS in the European electronics industry are happy with their iot, according to the sussets-based job agency Xem/Farry International.

Ol200jobapplicationsreceived from the countries in the law from six countries in the last from six countries in the last sparter of 1976 and the first sparter of this year, only 5% came from electronics executive, while 32% came from

and 18% from those in consumer product firms. The percentage was slightly higher, at 7%, when it came to marketing and sales

Kom/Ferry found that the best salaries were enjoyed between the eges of 40 and 45, sithough this was also the period of areatest unrest.

role in PL/ PARATIONS are under way

e expected large UK role in an ISO standard for leating is to be held in London October 24, to brief the ilsh Standards Institution elegation to the International ards Organisation's first ting on the topic, in The

ANSI/European Computer Manufacturers Association be based on this, but could

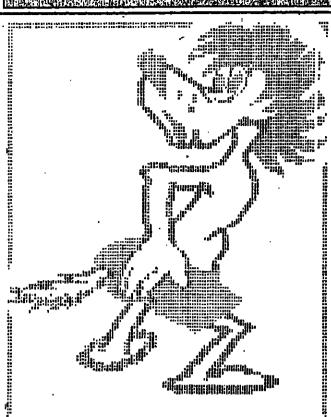
One point on which UK concern has already been expressed is the definition of some delays, a joint disciplinary language subsets of this large and multi-



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standard was approved earlier possibly involve considerable alteration.



MY Russian is non-existent, but centre has a library of over 100 MY Russian is non-existent, but I'm told the warning on the above printout, produced for Malcolm Peitu by an M-4030 when he visited the international Enginaering Exhibition in Brno, Czechoslovskis, reads, "Watch Out!"

It is, I'm relieved to say, the only example of computer graphics using the Cyriflic alphabet to come my way since I asked for

to come my way since I asked for univers kamples on August 25.

My thanks to all those readers be papered with the samples sent, sithough not (for lack of

which is networked with other universities' System 4s and the 2980 at Bath), and would pass such information to others. The who responded — my office could be papered with the samples computer games, and would sent, although not (for lack of space) this column. 1 was interested to learn that Computer Centre, Bristol University's computer Walk, Bristol

CHESSLAB

Program automation End this neglect

Weekly's Call for Action I strongly endorse the proposal task force to retrieve something from the mess.

Clarion calls always carry a risk that the good citizens may rush out of doors and, each mounted on his own mettlesome hobby-horse, gallop off in every direction except where the trouble is.

The location of the present disaster area is too obvious for that, namely in the Land of Myopia commonly referred to as Whitehall. Shirley Williams' recent feat of producing a 54-page Green Paper on Educawith no mention of the word "computer" is one small straw in an ill wind

The UK has the traditions, the skills, the brains, and the know-how to recapture world leads in computing and software. These knowledge-intensive sectors of our culture and economy are precisely suited for concentrated treatment by a country which is small and poor. yet still enterprising in outlook.

Thus far, I am sure, we are all agreed. The question is: are these potential assets frequenty/sometimes/never sent to hell in a basket by the caprice and A. M. Cox of Ferranti was

right to call attention (CW, August 25) to the fact that UK firms are still to be found in the front wave of new developments. It should also be noted that excellent things have recently been done by individual government agencies, such as NRDC and the National Enterprise Board's consortium, Insac. But it is wrong to conclude that the "conceived in the UK,

made elsewhere" pattern is not a real problem. My experience over years of professional activity in the potentially applicable field of machine intelligence is that it is precisely at certain sensitive transition points along the line from conception to production that official obscurantism wreaks the

compiler design and program

by DONALD MICHIE

Taking time out from his normal Privateview column Professor DONALD MICHIE takes up the recent Computer Weekly call for action to create national policies on the development and impact of information technology. Here he argues for the establishment of vigorous national R&D effort.

semantics have justly claimed

the lion's share. But the user of

the future will not be satisfied to

specify his solution in Cobol or

Fortran and have only the

He will demand to be lazy and

specify his problem only, plus

hints at a solution - approach,

with a few examples and a

body of general facts about the

problem-domain. Then he will

expect Super-compiler to gene-

rate him a good solution in, say,

As Super-compilers move to

the centre of things, mainstream

machine intelligence techniques

will have an increasing role to

play in their design. I am

currently working on AL1, a

Super-compiler for chess. In

end-game trials a two-month

programming task was done in

iwo days and a task widely

thought to be "unprogramm-

was done in six weeks.

As with manufacturing/

computing confusion instanced

earlier, we again encounter one

of the more persistent delusions

which buzz inside the bonnets of

government administrators of

merely giggle at this or that

experimental programming

study. Procedure follows the

test-domain; (2) adopt attitude

These persons need to disco-

scientific research.

accordingly.

machine-coding automated.

I received a painful reminder the other day at breakfast when my eye fell on a full-page colour advertisement from General

A COMPUTER THAT CAN SEE **GETS ITS FIRST REAL JOB**

Four years ago I had responsibility for a fine team of gifted young computer scientists who had just achieved goals in robotics widely judged impossible in relation to constraints of

General Motors, hearing of this, borrowed the film record which we made of the Edinburgh versatile assembly system. At about the same time our government sponsor sudterminated all support, and the team had to be

It is clear from the colour ad that General Motors over the intervening four years have faithfully followed our trail, transforming into cost-effective implementation an academic exploration of machine "teach ability" as a programming short-cut. Unfortunately General Motors is not a British firm.

The said government sponsors even managed to mis-iden-tify the FREDDY project as an exercise in manufacturing technology instead of in computer science. It may therefore be of interest to spell out the place of such work, as I see it, in the technical scheme of things.

Machine intelligence is dir-To caricature the rule, if it is a ectly and inescapably involved picture-processing program in the automation of prohe test picture may be of gramming skills. It is of course members of the Royal Family only one of the critical areas (love), or of notorious dictators from which progress in the automation of programming (hate), or of the characters in Winnie the Pooh (giggles). If the may be expected. program drives a robot, then it is In the past, disciplines such as ndustrial automation (love, but possibly someone else's - try Department of Industry), and if

it plays chess it is a frivolous evasion (giggles). The logical end is that nothing at all gets classified as computer domain is so inconspicuous as to escape detection, thus letting computation theory in under the

The scientist, on the other hand, knows that the experimental task chosen is orthogonal to the principles to be elucidated. A robot might learn recognition rules from sample TV views of engineering parts, and a chess program might learn strategies may bring into existence

from sample positions. If the two use the same fundamental mechanism, then they cons tute one and the same conini tion to the automation programming.

Imagine that early Rabin support of telecommunications had been monitored by assessor according to the content conversations tapped from t telephone wires: "We o support this, I distinctly her some very rude words." "We . but very beautifully spoke

thought . . ." and so on. Mercifully telecomm tions research was judged in t US important enough to me the sane and protected enviro ment of properly regular research institutes, and & Laboratories among others was

Now in the new wave computing technology, maj-institutes for advanced compa ing have been established in have become pre-eminent als in the new disciplines.
In the UK what is the sore

The score for the entire country is precisely zero. For a few you SRC's Atlas Computer Labor tory seemed to tremble on the brink of developing in this must needed direction. But readered Professor David Barron's rect obituary of that laborates (IUCC Newsletter vol 5, 10) will know that opposition to a freestanding national research effort in computing is danger rously entrenched. whether as the taxpuyer's agents they should love, hate,or

There seem to be ental. British software and system ouses to come together in his to form a joint overseas manrule: (1) ascertain the program's ing spearhead. There are enough experienced research men % tered around the UK able i willing to form an Rispearhead which could carr out ahead of all comers. excepting the Americans i Japanese, in the critical area software automation and 35. ciated skills.

Since the total cost of F gramming to the nation upproaching the amazing fig. of £1,000 million a year, the is worth at least a look

When we add the possible that one day certain kinds programming might of necessible contracted out by other nations to the UK industry. the only software people able handle the given levels task-complexity, than I submit that a national institute for advanced computation is well more than a look.

It should be seriously discussed ed by any task force star Computer Weekly's initiality

updates operating system

A MAJOR update of Systems Engineering Laboratories' operating system for its SEL 32 minicomputer series has been announced in the UK. The system now includes a time sharing capability, and is accompanied by a Basic compiler and a database management

The time sharing capability. said UK managing director John Wright, would make the SEL 32 more attractive to the commercrooks with a new way of cial market. Previously, the company had concentrated on scientific and technical users, previous manual methods, and the timescale in some cases is though the system already has a milliseconds," according to Donn Parker, a senior consul-The Maxximum database ma-

nonitoring and sampling hard-

GEC system

to produce

Braille texts

A GEC 4070 is to be used to help

produce Braille texts from English originals. The system, to be installed by the Royal National Institute for the Blind

at its new London printing works next year (CW, May 12),

wil drive a Braille line printer if

single copy of a document is

wanted, or produce tape casset-

tes for controlling the emboss-ing machines which produce

metal plates used on printing

English text will be input by 16

display terminals and edited online, so the system will be a

considerable improvement on

the present card based system

presses for mass production.

tant for Stanford Research agement system handles hier-Institute International. archically organised databases, and has an added capability for "There is also a danger of organised crime and foreign managing partially inverted files. This allows the user to powers moving into the computer crime field," he added. access records by the value of This new world has been certain key flelds.

created by the introduction of The database software also computing into our personal and supports a pointer item, allowbusiness lives, and it is a world inhabited by Super-Zappers, ne data to be referenced by olute core memory location. Trojan Horses and Salam This simplifies, in particular, the techniques*. storage of data from real time

To many the jargon means nothing — just an "in" way to describe an event — but, says Parker, "I guess when a field has its own buzz-words, it has arrived." Last week he chaired a

two-day conference on information security, organised by Online at the Regent Centre Hotel, London. He has lectured to FBI agents

on the problems encountered by investigators in computer crime and has been in the "computer abuse" field for about two

An infamous example of computer-related crime is that of the Equity Funding Insurance fraud, in which 54,000 fake insurance policies were produced and maintained by skilful This resulted in an estimated \$2 billion fraud which was dramatised on television as Billion Dollar Bubble"

"One specific area important in terms of computer crime is EFTS, electronic funds transfer

which takes up to a year to produce a novel in Braille. **Kacal show attracts**

THE annual Racalex exhibition of products from the whole Recal group attracted 3,500 tietors to the Royal Lancaster Hoel, London, last week, and proved the most successful yet. with 700 foreign visitors from 98 iferent countries attending.
In addition, 2,500 of the company's 6,000 UK employees visited the show.

Two products which attracted

CAFF comes in two versions in equipment - the RTL-5, based on a disc-backed Computer Automation mini, and the mi croprocessor-based portable RTL-5M, which comes with small VDU-keyboard module only 6.5 inches by 5.5 inches by 11.3 inches.

The systems are designed to guide operators through test ligo System 180 Network anything from vehicle electro-Management System, and the Racal-Tacticom CAFF, compuler-aided fault finding system.

anything from vehicle olders, and television sets, giving simple question and answer routines for diagnosis.

Autumn lectures

A SERIES of public tectures on eachine Intelligence is to be pasented by members of Edinburgh University's Machine intelligence Research Unit this sutum. The unit is headed by Professor Donald Michie, a regular contributor to Computer Presenting five of the eight actures.

The lectures will start at 5.15 min the Faculty Room North, lone Tower, Gaprge Square, to always, They are free, and The dates and topics are as follows:

condensing and re-writing long established scientific lore and useful arts. OCTOBER 24; The Stanford

Mycin system for clinical path-OCTOBER 31: The Stanford Dendral system for organic chemistry.

NOVEMBER 21: Machi-ne-aided synthesis of rules of thumb.

NOVEMBER 28: Proving chess strategies correct.

DECEMBER 6: Bostal 39poets of maghine intelligences.

Merrick elected CSA president

Merrick's vice-president is John Ockenden, of

In his acceptance speech, Merrick said the Scicon. The secretary is Basil Cousins, of Computel, and the treasurer Dr Douglas Eyeions, systems meant that there was an even greater of BOC's bureau subsidiary Datasolve.

ses. EFTS is a danger area."

Research by Parker on a selection of 362 computer crime

cases has shown certain vulner-

able areas. These include poor

controls over manual 1/0

ethics, poor control of computer

programs, weak or absent

lack of operating system access

controls and integrity.
"I can see no difference in the

dangers between the US and UK," said Parker, "Programmers are one of the most

nysical access controls, and

handling, failure of business

Barney Gibbens, of Computer Analysts and Programmers, has replaced Merrick as the CSA's companies.

He also believed it essential that the CSA representative at the European Computing

bureau Lowndes-Ajax, was voted president of the effectiveness of its activities.

here is enormous because the

spotlight of responsibility is

falling on fewer people. These

people, in positions of responsi-

bility will have more power, and

Supporting this view was

Susan Nycum, a computer lawyer, based in San Francisco

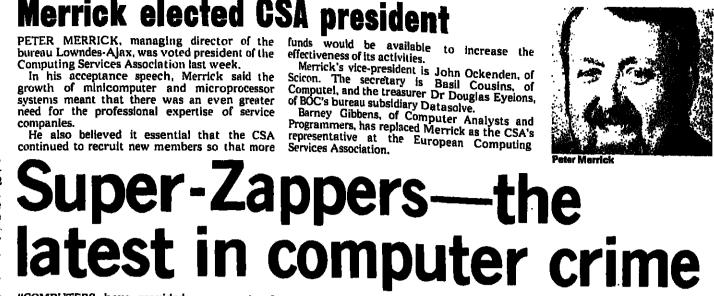
with the Computer Lawyers Association, who has worked

with Donn Parker on computer

Computing Services Association last week.

growth of minicomputer and microprocessor

need for the professional expertise of service



we cannot have any real

safeguard. It will be at least

eight years before a commerci-

adequate safeguards is available."

*Super-Zapping is the method of by-passing system safeguards and procedures, and is similar to previous manual methods called "Zapping". Trojan Horse is a secret code embedded in the original program. Salami techniques involve

apparently harmless acts such as

ding down of amounts, but due

ally available computer that has.

This sporting life

OUR story about the system used by the Football Lesgue to compile fixture lists (Downtime, September 1) has evoked a response from a reader who has been involved with the

has been involved with the system.
It appears that the system is also used by the Test and County Cricket Board. In fact the system can work out fixtures for any sport with up to four divisions and up to 40 teams in each division.
The system consists of a validation program, two sorts and a printing program. The validation program checks for inconsistencies, omissions and duolications, and has cotions

duplications, and has options for checking that each team plays every other team in its division once at home and once away, and for printing out lists of teams not playing on a given

The printing program produces fixture lists by club or by date, according to the preceding

tes to run on an MOP terminal linked to an ICL 1900 running under George 3, and 10 minutes to print the output.

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"We have only seen the tip of the iceberg," she said, "and as more and more jobs become "UK," said Parker. "Programmers are one of the most dangerous types of people, and

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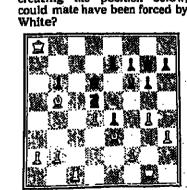
Computer users are demanding increasingly high standards from COM hardware and COM services. At NCR we have the experience and the technical know-how to meet the challenge because we are the only people in both microform and computers.

the state of the s

In fact, no-one is better placed to

So if you're going over to COM, we see no problem.

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had responded to Duchess'

which Kaissa spotted (and on disc in the form of a look-up which reason in the actual play table of optimal continuations the masters floundering in by the last-ditch move: 34. ... for all legal positions, "unnatural" territory in which by the last-ditch move: 34. for all legal positions, "unnatural" territory in which R-KI) goes: 35. Q-B8 ch! K x Q; The complete space comprises they repeatedly wandered from approximately 2 million White-37. R-B8 ch. Q-Q1; 38. R x Q ch. to-move positions and an equal number of Black-to-move R-K1, 39. R x R mate.

Five moves make 10 ply positions.

Kaissa running on the IBM Berliner was invited to play 370/168, as at Toronto, searches to depths ranging from 7 up to 12 database in consultation with ply in quiet variations, more in International Master Lawrence forcing sequences. So it is not in Day The Kokk ending is tricky way surprising for her to this one, and the same but it is known to be a forced

22) ended with Russia's program Kaissa poised on the brink. If she

might have offered best chances that he could not win against the against a human experti The machine-versus-human

The neat sacrificial sequence. KQKR end-game and stored it: skewer attack on the rook.

an error-free end-game strategy for king and rook against king maximally delaying defeat.

These manoeuvres frequently and queen. Its author, Ken
Thompson of Bell Labs, was one
of the two programmers of Belle,
which ended the championship
in fourth place.

LAST Chesslab (CW, September almost certainly goes for Duch- win for the queen's side from But since none of the tion is that a strong master chess-masters who were present spotted it, the "blunder" K-N2

Berliner found to his surprise

> The machine conducted its contrast was heightened by a defence in a style quite new to programme. International Ma- were counter-intuitive from the ster Hans Berliner was matched point of view of a human against a database containing defender yet efficacious for

> in fourth place, from the king — a rule of thumb
> Thompson has computed an against White's bringing off a exhaustive solution to the sequence of checks to build a

ACOUSTIC COUPLERS MOORE REED & CO. LTD. Websprift Andorer Henry Tel Andorer 11 66

general position. The assump-

Machine strategies

Hence the machine's play had

STOP WASTING MONEY! 1icroSim 8080 The world's most advanced Program development system

The discrepancy between the defensive strategy implemented in Thompson's database and the books is easy to explain.

The database strategy has been generated under no other constraint than that it be maximise the length of the forcing path leading to defeat.

The book strategy, on the other hand, has been prepared under the constraint of an added requirement, namely that it be feasible for a human to memorise, and also not require excessive calculation for its application in across-the-board

Could there be a machine methodology for generating strategies for humans? Later Chesslabs will return to this intriguing topic...

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GILB'S MYTHODOLOGY

Does it save time, money or manpower?



RELATED to the issue of database languages (discussed in Gilb's Mythodology, September 8) is the software support packages which ac-company them. Quite natur-ally a complex language speci-fication results in a complex hunk of software.

I have been unable to find the resource saving justification for the use of these packages, even in special cases and isolated instances. My suspicion is that there is no economic justification. I have particularly concentrated my attention on IBM'S IMS product, which has something like 800 or more customers worldwide. I suspect that other database software packages of similar complexity, such as Codasyl-based packages with most or all features implemented would be as bad or even worse (as IBM maintained convincingly in one early

I also have reason to suspect that there are a number of 'simple'' database software packages such as Total (with as many users as IMS) which do not exhibit the same problems, mainly because they are simpler in concept and number of built-in functions.

I have been unable to provoke IBM into providing me with a single piece of documentation showing economic justification of the use of IMS, I have been unable to find any user willing to do so. and among the many documented cases of use of IMS in my collection, not one shows any impressive results or any attempt at economic justifica-

The clearest and simplest summary of this experience can be quoted from one of the case studies (Stapleton in Infotech Report, Database Systems, 1975) from the Bankers Trust experience. "There has been no dramatic impact on the bank as a result of using IMS", and " . . database systems present it with new

problems . . ", and "the only major effect of the installation of IMS that has been noticed by the bank is the increased cost of the computer service", and "a custom-built system would process more efficiently, and might even have been cheaper to develop.'

Stapleton does not blame IMS directly for the results, but does seem to draw the conclu-IMS distracted the developstaffs' attention away the really important problem of making something useful for the bank's depart-On a wider basis the Dataoro

user surveys, (reported in Datamation, December 1976, page 110), show the IBM products with consistently lowest user-satisfaction ratings of all database products (only IBM's GIS, which is even more complex than IMS, rated

On a scale of 1 to 4 (1 = poor, 2 = fair, 3 = good, 4 = excellent) out all aspects with a 2.6 rating (not quite "good") and 33 IMS users (presumably using the DC component as well) rated it 2.9 on the average. By contrast 113 Total users gave a 3.5 rating and IDMS from Cullinane was rated 3.8 by 17 respondents. The IMS products got particularly low marks on ease of installation (2.3 and 2.2) for the information of those of you that have illusions about simplifying your development worries. One IBM specialist in Swed-

en promised to send me proof of IMS economic justification. When it finally arrived, the proof consisted of the fact that a suite of about 43 programs before IMS use, became about 35 programs afterwards. That was all.

Another IBM specialist (experts, in my terminology are people who know their own limitations, so I use the term specialist when I find no evidence of expertise) tried to mically justified.

get me documentation on the level of specialist support required, and produced the "success story" of the London local authority with ten IMS specialists: five for tuning the performance to avoid performance degradation or hardware upgrade and five to fight the bugs. British Leyland reported six specialists at the

start, and 10 in 1975. Swissal reported a total of 25 at May 1975, guide. I have reports of more and of less, but those who escape with substantially less seem to pay for it in increased hardware costs and unreliability. The value of ingenious specialists is stressed by Stapleton of Bankers Trust where a four hour run was turned (by people to 15 minutes.

The unreliability and break-down frequency IMS will come as no surprise to users of O/S and CICS packages, and seems perhaps inevitable in such a large softlware system. But regular, usually daily breakdowns can be expected, long recovery times are normal. An early IMS/VS user, Eternit AG, Berlin, reported at Guide May, 1975, 44 "problems", 29 IMS breakdowns and 15 IMS coldstarts in January alone. British Leyland reported to me a necessity of 217 fixes in the first six months of IMS use; the longest APAR response from Palo Alto was six months, for a fault which cost them about five hours to patch locally. They also reported a 360/30 16K application (including an 8K supervisor) is now using a 180K IMS partition after being

'bridged' Space prevents more examples, but I have an extensive collection of them. Even the material IBM publishes (such as the Bayer AG experiences) would seem danaging. I'm still waiting for counter-examples. There must be one sunshine story among all these disappointments? My hypothesis: Large scale database software is never econo-

SOFTWARE FULL FOR THE PROPERTY OF THE PROPERTY

ICL to boost Safe's US export chances ANOTHER product of an independent software house is about to be given its first export push in the US, by ICL. The manufacture which has increasingly which has increasingly and concentrate its initial and edicided to concentrate its initial and the production control, and show the state of the US, has decided to concentrate its initial and production control, and show the state of the US, has decided to concentrate its initial and production control, and show the state of the US, has decided to concentrate its initial and production control, and show the state of the US, has decided to concentrate its initial and production control, and show the state of the US, has decided to concentrate its initial and production control, and show the state of the US, has decided to concentrate its initial and production control, and show the state of the US, has decided to concentrate its initial and production control, and show the state of the US, has decided to concentrate its initial and production control, and show the state of the US, has decided to concentrate its initial and production control, and show the state of the US, has decided to concentrate its initial and production control, and show the state of the US, has decided to concentrate its initial and production control, and show the state of the US, has decided to concentrate its initial and production control, and show the state of the US and the state of

adopted outside products in the past few years, is to provide a US outlet for Safe Computing's SafeS production control sy-

The product now known as SafeS was originally developed by the Production Engineering Research Association (Pera) and Scicon, as a result of a 1973 survey of companies' production control needs. It passed into Safe's hands when several Pera staff moved to Safe. The Singer System Ten was

selected as a suitable small online-oriented machine for implementation, and the product was released late in 1975 just in time for the collapse of Singer's computer business. When ICL took up Singer's

interests, it assumed marketing

matical and Statistical Libraries,

of Houston, Texas, has been

implemented on a minicomputer

for the first time. The library is

now available to users of the

There is, however, no formal

marketing agreement between DG and IMSL, and the software

can still only be purchased directly from the latter com-

pany.
The IMSL development fol-

lows shortly the implementation

Data General Eclipse series.

SafeS marketing in an East Coast band extending through Boston, New York, New Jersey, Connecticut and Washington. his is one of the densest industrial areas of the US, Safe Safe will retain responsibility

US "would be the next logical step," admitted John Evans, general manager of Safe's manufacturing systems division. Several US companies have already expressed interest in the product, and Safe is confidently predicting the first sales before

for background support, and

founding of a Safe office in the

the end of this year. SafeS is a principally on-line production control system, embracing bill of materials, inventory control, requirements planning, costing and factory

DG grabs library 'first' THE library of mathematical increasingly complex require and statistical subroutines pro-

duced by International Mathe- acceptance of "packages" in areas of work traditionally reserved for in-house program-Puzzler



of its UK rival, the Numerical Algorithms Group library, on Prime 300 minis (CW, August for the complete calculation. users is evidence both of their

MOST skeletal division sums are long-winded affairs, with lengthy numbers involved. This one is an exception, but quite Lough nevertheless. See page 39

production control, and should not require professional pro-Like most production control

software, SafeS breaks up each product into its component parts, to several levels (Sales allows a maximum of 11). This record of product structure serves as the database for most of the applications. Safe claims to have achieved speed improvements over its rivals, with more efficient methods of searching this logical "tree

Information can be called a on the VDU showing wha components go into a produc or, equally, a list of products in which a given component in

The operator can decide who components are required to meet any order, check whether enough components are it stock, and, if any are lacking examine the time and resource required to replenish stock and Copies of the files can be made

for temporary alteration, enal. ing management and enginees to deduce the effect of a chapp in cost of any resource, or of a change in the make-up of a product.
As an ICL product, SaleS fin

appropriately below the compa ny's mainframe Omac syster giving it a wide-raning and on the production control fexat a time when demand ! effective production control: Further enhancements !

SafeS, such as work-in-progremonitoring, costing on day-to-day basis and perform ance reporting, are due to be released at the beginning of nec

inghouse's Westi, for IBM machines, and Zeus-Hermes Cortez, on ICL equipment. Westinghouse has taken up

marketing rights for Cortez in

Easing the blockages ANALYSIS of the structural

properties of pipework has been essed, claims the Scicon bureau, by a software product which it has imported from Norway. The package, Sesam 69C developed Norwegian consultancy Computes, takes advantage of the fact that a typical pipework layout can be divided into large standard elements.

Sesam divides each 'of these superelements" into small elements for the accepted finite

wherever it occurs in the structure, the Sesam method avoids re-calculating these properties each time. Multiple levels of superelements can be handl-

The software is available in remote batch mode on Scicon's Jnivac 1108s, or online from terminals in Scicon offices or a

UK clients for the system have already been gained, in the fields of aerospace and turbine design.

own applications development Westi users in the UK. and not deal with Zeus-Hermes As well as clearly aiding

at all. The Zeus-Hermes Cortez - and the new version consultancy service will be Cortez Plus - to reach a wider charged entirely separately and market, the move "will act as a will have no effect on the price springboard, helping Zeus-Herof the basic Westi software. mes to move into the IBM TP Neither company is currently market, following its success with ICL," said director Mick considering recruiting specialist staff to deal with the arrangement; both are planning to wait Reciprocal benefits will, of and see whether demand is

applications software

modules. Westinghouse itself

will handle any systems softwa-

re support required, "but we are

course, also accrue to Westingheavy enough for such recruithouse, until now a specialist in ment to be necessary. IBM DOS systems. It will show Zeus-Hermes already has itself moving into a wider market, and the UK support for some experience of IBM teleprocessing configurations through its consultancy activi-Westi will encourage sales of this product in the UK where it ties. Westinghouse does not has, to date, hardly penetrated. have experience of ICL TPL, but Zeus-Hermes' aid to Westi contends that Cortez and Westi are similar in their basic apusers will consist mainly of advice on, and implementation

Zeus-Hermes will initially be providing technical backup for the Continental sales

Users turn spotlight on 2900 progress

ICL 2900 series, and particularly the choice of operating system, will be a prominent feature of Club, on October 18 at London's Waldorf Hotel.

Taking as their theme "2900 progress — three years on", users and consultants will outline reasons for using 2900s in various software environments, and will give some of their practical experiences. The latest operating system

strategy, the DME 1900 emulation environment will be discussed by Phil Fellows, of Vickers Engineering group.
The alternative, "a flying start with VME/B", is the topic of

M.B. Gardner, 2900 Data Centre Manager of BOC Datasolve. Completing the trio, Dr Spratt, of Kent University, will speak about VME/K.

The options in teleprocessing software will be discussed by D. Atkings, a consultant with CSI (UK). S. Quelin, of Methodes et Informatique, will go outside the pure software area, with an account of the reasons for choosing a 2960. The day will be rounded off with a talk on future developments by Bruce Stewart.

Tickets, at £17.50, including lunch, are available from the club's secretary, Arthur McCann, of Computel, Eastern Road, Bracknell, Berks.

Dutch date for Disspla users A MEETING of the users

association for the comprehen sive plotting package Disspla is scheduled for October 13, in Petten, Holland. One of the major features of the event will be a presentation of new features in the product, including a conversational plotting package, known, appropriately as Tell-a-Graph. The meeting will also include

presentations by local users of the inexperience with the system, and a report from the US user meeting, held in July. Further information is avail-

able from Dutch agents Repko b.v., van Blankenburgstraat 58, The Hague, Holland Tel:

POOR AMMER ROTES

not specified.
"In this age of wo

Sheration, no significance is to be placed on the fact that 'male'

coded '2' ", an ISO spokes-

HE question whether "productive" programmers are good programmers (CW, June 30) has been raised again by a US observer, who has provided, for a change, some practical figures corre-lating speed with long-term efficiency.

Unfortunately the writer, Jack Wolfe, of New York, is hiefly concerned to deoonstrate that time limits on rogamming "aptitude" tests are unrealistic. Hence his amples are of programmers enforming tests, rather than writing practical programs.
The validity of the compaison between the problems

an aptitude test and those ncountered in the progamming environment is a much argued point. Wolfe,

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Reliable test of the 'fast worker'

results in many promising programmers being failed in the test, and many "testwise college graduates" with no real programming ability being selected for the

"A company using such a test in the selection screening Wolfe.
"But such a worker may

assuming a strong correla-tion, the time limit factor still les and good work habits for successful work in pro-

is likely to lose the careful deliberate worker who re-reads specifications for precision of interpretation and desk-checks carefully for accuracy in execution. Such a worker will seldom complete a test in which speed is a significant factor," says

gramming. Such a worker wil moreover, prove to be actually faster because there will be less debugging and testing to do in bringing jobs to a successful conclusion." Wolfe's conclusions are supported by figures which

he obtained by conducting a test with a five-and-a-half hour time limit, which had already been assessed as sufficient for 99% of candidates to complete the test. The results showed a very weak correlation between speed and scores in the completed

Dividing the sample in half according to speed, and in half according to scoring, the slower but higher scoring candidates represented 22% of the sample. In other words, nearly half the high scorers would be rejected by a test with a more severe time limit. One reader has already

heavily criticised "the whizz-kid programmers who whizzed through programs. The aftermath", she said, "is left for the more conscientious programmers to deal One cannot, however, be

too idealistic about this. Obviously deadlines have to be observed, and there is a need for the programmer who will not only work quickly, but will be able to remain calm when called upon to rush. Even a careful programmer can make stupid mistakes under stress. What, then, is the best combination of these quali-

ties for an ideal programmer? How could these be tested

Looking at the other side of the coin, the problem could be not so much one of slowness as of poor schedu lug. An important factor in programming productivity is surely the ability to organisework on several concurrent projects yet this is not tested at all in conventional aptitude tests.

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Speeding the formatting of **VDUs for online systems** AS the second of its extensions instructions to describe the

to Cobol, Software and Pro- screens. These consist essentigramming Consultants of Lon- ally of line and column numbers don has developed software to locate fields on the screen, enabling a programmer for an and conventional Cobol desonline system to describe criptions of field formats. straightforwardly to the program the formats of visual display screens and the relationships between the fields on the screens.

The high-level description parameters used are fed into a pre-processor which generates Cobol code for handling the screens. This code can be incorporated directly into the program, or passed to it from a file, or through linkage.

The company have already reports which is essentially an implementation of the Cobol easily be implemented on the Report Writer. This is an optio higher members of the 2000 national often neglected part of family SPC's Report Writer has already been converted to these that were the second writer as a working writer has been writer uses Report Writer-like France Writer has been

The variable fields on the screen are seen as input-output

will require information to be entered, and an input prompt should always bring a response from the system. The two-way "conversation" between system and programmer at run-time is described to

pairs, since an output prompt

output information. Frame Writer is at presen implemented on ICL 1900 and 2903 series machines and could

the pre-processor, with specification of the source of the

SPC claims that the translator used in its products can be adapted to translate any high-level instructions to Cobol source-code.

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*INTERNATIONAL EDITION --SYSTEMS 77 PREVIEW + Bonus Circulation October 13

Once again, Computer Weekly is taking a stand at the show to offer advertisers an unrivalled means of reaching the targe number of high-calibre visitors to the show. During the course of the achibition, 5,000 copies of the October 13 Computer Weekly adition including a comprehensive preview of the exhibits another, and a series of articles on computing in West Germany, will be distributed to visitors.

NOVEMBER 3 **COMPEC PREVIEW** + Bonus Preview

Following the resounding success of Compec at the Wembley Exhibition Centre last November, the show returns to the same venue next month with an even bigger line-up of compenies eager to promote their waves. The show runs from November 8-11, and will be the subject of a supplement in Computer Weskly on November 3, where Computer Weskly as sponsors and owners of the show will be exhibiting and 5,000 additional copies of the issue will be distributed.

Topics to be covered include how microprocessors sealst the periphoral manufacturer; how users are being used to change intelligent terminals into distributed processing systems, wither goes the mini-computer? threat from micros? are minis taking over from main-frames? marketing low cost commercial microprocessor systems; limitations of microprocessors; why U.S. exhibitions are more exciting than UK shows

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IS THIS EØJ SEE NEXT WEEK!

March 13. Each session lasts the full day, bach course cun be taken sione. Further details from The Administrative Assistant (Short Courses), Room 2, University of Salford, Salford M5 4WT, tel: 081-736 5843, ext 449. SNA NETWORKS are covered by several courses which Hutchinson-Scoggins offers. Titles of some courses are introduction to SNA, SNA Protocols and Logic Workshop, and SNA for Network Opera-

COURSES

SIX short non-residential courses are to be run by the NCC in the North-East during October and November. They are: database concepts, October 27-28; online concepts, October 27-28; Filetah, November 8-9; project planning and control, November 15-18; computer concepts for managers. November 17-18; and structured programming. November

structured programming. November 28-30. Further details from M. Pass.

SOCCER

THE Summer Computer Large champion is Jadpu, which put the matter beyond doubt last week by

Latest results and league tables Division 1

beating SIA 5-0.

Jadpu 6. SIA 0 TWO courses under the general heading Accounting for the Human Factor are being run by BIS Applied Systems. Their titles are Effective Presentation and Reporting Skills, and Interpersonal Skills-Transactional Analysis. The courses are residential and the first will take place on October 24-28 and the second on November 28-December 2. For further information contact Stephen Heims, 79-80 Blackfriars Road, London SE1 8HB, tel: 01-828 9511.

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THE Department of Electrical Engineering at the University of Salford is holding two ten-session courses on microprocessors and minicomputers and their applications. The first covers fundamental aspects and runs on Mondays from October 10-December 12. The second course is a follow-up dealing with more advanced topics and applications and alsoruns on Mondays, from January 8 to March 13. Each session lasts one full day. Each course can be taken alone. Further

Scicon board seat for O'Malley

APPOINTED to the main board of Scicon Computer Services, a subsi-diary of British Petroleum, is Jack O'Malley who has been responsible for marketing at the Scicon bureau since 1976. He joined the company in 1969 as an applications consultant in the turnkov systems division.

Rising through the hierarchy. O'Malley became operations manager and as such was involved in the planning of Scicon's computer installation, established at Milton Keynes. He was appointed general manager, sales, in 1975.

James Robson, formerly Europear sales manager of Rucal Zonal, has been appointed vice president of the European marketing division of the Wabash Tape Corp of Huntley, Illinois. He will be based in London.



Frank Noone has been appointed sales engineer by Terminal Display Systems of Blackburn. He has been with the company for nearly two years handling internal training, customer liaison, etc.

Robert Corrao has been appointed CATV marketing manager for Jer-rold Electronics, a subsidiary of General Instrument Corp, US. Prior to Joining Jerrold, he was manager marketing planning for the com-

Data General appointments

DATA General has made three new appointments. John Jackson as branch manager, Manchester, and Roger Smith as branch manager, Birmingham; both of them have been salesmen within the company; and Peter Murray as field service manager. He was previously a field operations support manager with Mike Pybus has joined OCLI Europe of High Wycombe, Bucks,

Trevor Ore has joined MBM Computers as project leader with responsibility to install an MBM system linking the regional depots of CMT Industrial Supplies Ltd. He was

CMT industrial Supplies Ltd. He was previously with Scicon.

Steve Chan, who spent the "industrial year" of his degree course at MBM, has joined the software development department of BML, the R&D, interface and Peripheral Company of the MBM Robin Dyke has joined Uxbridge based Grandmet Information Processing as programming manager. He has previously been a senior consultant at Data Logic for the last

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Computing, the next twenty-five years.
Dr Chris Evans, BCS Croydon branch.
Fairfield Halls, Croydon, 19.15,
Speech recognition. Dr P. D. Green.
BCS, North Staffs Branch. Royal Oak

otel, Stafford, 20.00, Databases: Codasyl and Non-Codasyl. Basil Cousins, managing director of Compatol, BCS Reading branch, ICL, Lovelace Road, Bracknell, 20,00.

A historical view of impat/output devices and storage, Dr D. J. Wheeler. BCS Nottingham branch. TI main lecture theater, Nottingham University, 10,00.

OCTOBER 11-13

Electronic instrument oxhibition, Electronic Promotion Group/Industrial and Trade Fairs Ltd. Bloomsbury Centre

International Business Show. Business Equipment Trade Association. N Exhibition Centre, Birmingham.

The work of the Central Computer

Agency. Reay Atkinson. BCS, Sussex branch, Old Ship Hotel, Brighton. 19.30. Oracle — broadcasting the written word, David Wood. BCS Teesside branch. Teesside Polytechnic, Borough Road, Middlesbrough. 19.00.

Meeting. IBM Computer Users' Association Telecommunications Group. Palace Court Hotel, Bournemouth. OCTOBER 13 Why distributed computing? Dr F. E.

OCTOBER 14 The international conference on

computer applications in the developing countries — Bangkok 1977. Dr D. J. Clarke and Dr N. Revell. BCS specialist group. Zeus-Hermes Consultents, 2-10 group. Zeus-Harmes Consuma Capper St, London WC I. 18.00. OCTOBER 18

860rs. J. D. Klinker. IEETE. anchester Polytechnic, Rugby, 19.30. How to recruit and keep staff.

development from 360 to 3033, H. W. Tuffill. BCS Nottingham branch. TI main lecture theater, Nottingham University. 19.00.

OCTOBER 19

London EC1. 14.00.
Database design and use. Tim Bourn.
BCS Manchester branch. Manchester
Business School, Booth St, Oxford Road,
Manchester. 19.00.

Railway signalling techniques. J. D. Baker. IEETE. Scarborough Lecture Theatre, Science Labs, South Road. Durham, 19.30,

Using IDMS and data dictionary with Cobol. BCS specialist group. Polytechnic of Central London, 115 New Cavendish St.

Monro-Frazer, DPMA Sheffield Branch. Royal Hotel, Barnaley, 19.00 for 19.30.
Effective operations management. Jim Read, DPMA. Buil Hotel, Gerrards Cross. 18.45.
Building on success corneratories of

the marketing and sales division of Optical Coating Laboratories of Scotland and California, as a market

development manager. He was previously a technical sales engineer

with the Barden Corp (UK).

Manchester, 19.00. Performance evaluation. Professor P A. Samet. RCS Newcastle branch. Barra Bridge Bullding, Newcastle University Haymarket, Newcastle upon Tyne. 19.00.

lona from a new broom. D RCS, North Staffs branch, Post Hotel, Newcastle-under-Lyme,

ondon WI. I4.15.
Human factors in the use of display terminals. Open discussion. Room U316, ity University, Northampton Square.

OCTOBER 19-21 Conference on database management systems, Association of System 2000 Users for Technical Exchange (ASTUTE). San Francisco, USA. Association of Data Processing Service Organisations Inc (ADAPSO). San Francisco, USA.

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OP SPOT

A forum for your ideas

HELLO THERE. My name is focus. Some areas I intend to Bernard Allen and this week I cover include: am taking over Computer Training: The amount and Weekly's operations coverage, level of training available for particularly the weekly Op operations staff varies greatly from one installation to another

Let me tell you something ther. In my experience operaabout myself. I started with the tors, particularly trainees, Magnet Computer Bureau, a often feel neglected in this member of the GEC-Elliott matter. Then I moved to Barclays health and are sometimes the

tions. At Barclays I attended a incurred by working unsocinumber of DP courses to able hours?

subject and each week I intend might have encountered.

group, where an Elliott 503 Shift Work. All installations system was in operation. It was regardless of size and the small, lively environment, number of staff employed, with two operators per shift, work irregular hours to some and I was soon introduced to degree. Shift systems are often the various aspects of computhe cause of serious comment in relation to such things as

Bank, and became a member of source of humorous tales a large shift concerned with particularly the night shift. the operation of two IBM Shift Allowance. Does the 370/168s, running under OS rate of allowance received by MVT with Hasp and support- operations staff fully compening a large number of applica- sate for the inconvenience

broaden my technical know- Career Progression. In some firms operators are encouragledge.

My next installation was ed to move on to technical that of the London Electricity support or programming. Board at the Elephant and 'Should operations expertise be Castle, I gained further practi- regarded as an end in itself, or cal experience by operating a should it be treated as a 370/158 using OS/VSI. prelude to other computing That is the background that disciplines? In this respect I am brings me to CW and Op Spot. interested in hearing from Op Spot is concerned with operators who have moved omputer operations — in all from operating and would like its aspects. This is a broad to know of any difficulties they

to bring a specific topic into Communication. There is

Doubts on IBM sales boom

From Front Page

we will consider all the alternatives and the first thing we will bok at is the 3033."

The bank is likely to be one of IBM's most important SNA iusiomers.

Overseas Containers, running 1 158 under DOS/VS and plunning to switch to MVS, needs a second processor, but there is no question of switching the order for another 158 to one of the new BM machines — or to an Amdahl or Itel system.

The 158 has some time to run he lease, and the second onc. which we are getting in April, will be on rental," said DP manager Brian Barber.

"It will take about 18 months 0 get the system running in multiprocessor configuration, and we will start thinking about JOSx in two years.

The Amdahl and Itel offerhgs are excellent boxes, and we ish IBM made them. If we had he lessure to check out their ystems and to sort out all the Possible problems ourselves, we ider them, but we are heavily dependent on IBM software and support, IBM is hyway becoming more competitive, and we don't want the problems of multiple

At Duniop in Birmingham, the c At Duniop in Birmingham, the c 30/155 is about to be replaced by a 158, which will run under 0S/VS1 where the 155 runs

"We are not committed to the 158 and we do use plug-compatill sand then try a plug-complug-compatible. But as far a

he company is always looking

are not ready to replace it. But Exxon does have an Amdahl 470 in the States, so we are not tied to IBM," he said.

Teamco is a subsidiary of a Norwegian bureau, and took over the lease on a 155 formerly used by the International Pub lishing Corp, IPC. At present running MVT with modified HASP, the bureau has no immediate plans for a change.

The Stock Exchange is fully occupied getting Tallsman up and running on its 158, and is likely to stick with IBM for at least another couple of years. Thomson Holidays, running a big holiday booking system on a 158, believes the fact that it is

using a special real-time system based on assembler-coded software from KLM precludes it switching to other hardware. The London Electricity Board running a 158 under OS/VS1, is

158 a success and so is IBM," said a spokesman. Freemans, the mail order organisation, is in the same situation, planning to continue

with its 158 at least until 1980. Sun Alliance, the big insurance company, has two 155s in Horsham, and another in Bir-'We are always looking at

cost-effective alternatives, but cost is not always the overriding factor," said a spokesman. "We have looked at the new systems, and Itel looks interesting, but we are not keen to be first in the field with both hardware and software."

Datastream, the indispensable tool for the financial community, is running a very full 158 under MFT.
"We are looking to expand,"

said a spokesman, "but we have not yet decided whether to move to a larger machine or io put in a dual system, hor have we decided additionally system.

We would want to see the We have only had our 158. Amdahi 470 prove itself before making a commitment?



often a lack of communication gement Association. between management and operators, and a lack of co-operation between operacomputer industry. tors and programmers, 10 might be interesting to consider these problems and how

they might be resolved. I would hope to broaden the format of Op Spot, using it as a forum where Computer Weekreaders can express their ideas and views. All communication is welcome, whether critical, humorous or topical. I look forward to hearing from

● If you would like to contribute to Op Spot, contact Bernard Allen, at Computer Weekly, Dorset House, Stamford St, London SE1 9LU.

Three bodies unite on privacy policy

the public should expect that

such work is done under

controlled conditions. And it

points out that the onus should

not fall totally on the computer

operations department because.

provide security appropriate to

the level of sensitivity of the

The three organisations call

for the formulion of a statutory

lthough the department must

statements on computers and privacy has been sent to the government's Data Protection Committee, which is drawing up proposals for possible legislation to protect personal data, by the British Computer Society, the Computing Services Association and the Data Processing Manamonth (CW, September 29), says

the proposed Data Protection The three bodies represent Authority should licence the use about 30,000 members of the of information and also issue certificates of security to those

The statement does not differ from views expressed in the three organisations' individual submissions to the Data Protection Committee last year. But, as Gerry Fisher, BCS retiring president, put it, "We felt that a joint statement by three major bodies representing people and companies in the computer industry would add weight to our separate submissions.

Alan Benjamin, director-gen eral of the CSA, added, "It is important for the Data Protecdata, in many cases it will not tion Committee to find out if know what the data is used for. there are any areas the industry feels strongly about."

the three organisations is should be independent of golicensing. The statement, which vernment and supported by fees formed the basis of Benjamin's Fisher said a £10 fee for each presentation to the international application would cover costs, conference on trans-border data as estimates have put the flow, organised by the Organinumber of applications at betsation for Economic Co-operaween 50,000 and 100,000, altion and Development last though it could be twice as

Other topics to be studied by the three bodies are the response time to a citizen's request for access to information about responsible for operating the himself stored in computer systems; the role of reasonable The statement says that work ness in drawing up security involving the use of personal standards; the costs of security; data risks breach of privacy, so and the harmonisation of legis-

lation in different countries. One organisation absent from these joint discussions is the National Computing Centre. It was invited to join in, but, as Eric Howe, NCC deputy director, put it, "We didn't think it really appropriate for us to go in. It would have meant seeking our members' views again and we did that pretty thoroughly first time round so we decided to let our members' views stand.

SIbaran onine LIBRARIAN/Online (LIB/OL) is a low overhead with CICS ARIAN and teleprocessing monitor terminals. LIBRARIAN or other teleprocessing monitor teleprocessing monitor teleprocessing monitor teleprocessing monitor terminals. LIBRARIAN Or other teleprocessing monitors available to Just of The LIBRARIAN/TSO is teleprocessing monitor terminals. LIBRARIAN/TSO is a low overhead working in a better and teleprocessing monitor terminals. LIBRARIAN/TSO is a low overhead working in the LIBRARIAN/TSO is a low overhead working in a better and teleprocessing monitor terminals. LIBRARIAN/TSO is a low overhead working in the LIBRARIAN/TSO is a low overhead working in a better and teleprocessing monitor terminals. LIBRARIAN OVERHEAD TO THE LIBRARIAN/TSO is a low overhead working in a better and teleprocessing monitor terminals. LIBRARIAN OVERHEAD TO THE LIBRARIAN/TSO is a low overhead working in a better and teleprocessing monitor terminals. LIBRARIAN OVERHEAD TO THE LIBRARIAN O The LIBRARIAN/Online Estended in Compania, LIB/OL & The LIBRARIANTSO Intere quite satisfied with the system. "We are determined to make the Online Programming— We'll be sending you Online Program Development – the 'Quiet Revolution', away from noisy card punches and printers onto silent VDU's - is probably one of the most dramatic changes in today's programming environment. Our current users the latest information report many very real benefits—much increased programmer productivity, paper savings, reduced project duration... And with minimal impact on the computer resources and on our products. operating environment.

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LEITERS

Why not join the DPMA instead?

gement Association to reply to the letter of Mr D. K. Allan, interested in the traditional secretary of the Kingston internal bickering of the BCS. branch of the British Computer What the DPMA is involved in is Society, would perhaps be presumptuous. After all, the letter was no doubt addressed to the BCS executives who, it is hoped, will make a considered reply in due course.

Meanwhile, Dave Allan asks

what can individuals do about the impending imposition of the "immoral and unprofessional" application fee and higher subscription. The DPMA has a practical suggestion. Potential (and current) members of the BCS should consider joining the alternative computing association, the DPMA.

Unlike the BCS, whose membership has been "stagnating and is now declining, the DPMA is flourishing. Last month alone, application inquiries were equal

first-time users, the mounting of practical seminars, workshops In no way is the association conferences and branch meetreflecting and promoting the views of its members on a practical basis, such as a

standards publication for

ings.
Incidentally, the DPMA's application fee has remained at £1 since inauguration, ten or so years ago. This sum amply covers all processing costs and the association has no intention stimulating survey — in con-junction with Langton Informaof increasing the amount. tion Systems - on the recent If you are a responsible Carter report on the UK Post Office. The industry award

manager, supervisor, practitio-ner or computer professional, the DPMA would like to hear scheme introduced last year is already regarded as the major DP management award.
Other current activities include NEVILLE TAYLOR, Chairman, DPMA the sponsoring of an industry

The Editor welcomes letters commenting on subjects published in Computer Weskly, or on original topics. All letters must be accompanied by the writer's name and address, not necessarily for publication.

Frankenstein moral Be kind to the beast

(Letters, September 15) commenting on my article on machine translation. He speaks as a former translator, a practitioner of a very skilled craft, and he feels that no machine can replace him. What he fails to realise is that in this age machines must replace him, because human translators cannot possibly cope with the volume of translation required in the world

today.
In the European Community alone the problem is so serious that a congress was held in Luxembourg in May with the theme, "Overcoming the language barrier." There are seven official languages in the Community and many documents are required in all of

I FEEL very sympathetic with them. Many are highly technithe views of Robert T. Street cal. There is such a shortage of ever method of translation in translators that many have to adopted. In my method the translate documents dealing termediate Number Language termediate Number Language very flexible and difference to the control of the control which they have had no trainnumbers can be allotted to a ferent nuances of meaning for example, if you feel that there ing. They have to rely heavily on computerised dictionaries and thesauri. Many of the docu-ments presented for translation a difference of meaning between "a hearty welcome" and "acu dial reception," you can give to are ambiguous. A number of translators spoke

numbers. In this type of ing-

lation very much depends on the

dictionary maker. He can mile

wishes. Much also depends on

Whereas for "exact" text

style is usually of minor input ance, for "non-exact" text hts

often desirable to make the

output as pleasantly readable a

possible. These are fascinaling

Mr Street has a very sensit

ear, has a knowledge of computers and is skilled in

foreign languages. He is the

cularly well equipped L tackling these problems. Wh not help us, Mr Street? Our!

dress is: BCS Natural Langua

Translation Specialist Grown Barrington Road, Bexleyhar Kent DA7 4UW.

should transfer my energia

trying to promote better was

in fact, is one of my objects researching machine tri

lation. I want everyone

wishes, to have a computer

friend correspondence s.

someone in any other conti

without having to least

foreign language. I also will children in the world to be the

to read any of the world'sbe-

that they want to read in the

own language. I am a lover of reading as

Street evidently is. 1, 100, 12 read "Frankenstein," but I

not see the monster as Mr Su:

does. I sympathise with the fortunate monster. When he see

first created he was gapt: friendly, studious, highly sti-ligent and anxious to be kee-

But because of his uncount pearance, he was rubles

In Mr Street's letter, Franks

stein's monster is the contract

This being so, the moral k

Mr Street suggests that

in the discussions at the congress and were in favour of nachine translation. My own paper on Slunt was well received and several translators congratulated me on it personally. In the developing countries there is the very serious problem of the shortage of technical books in native languages. If these countries do not get books through machine translation they will not get them at all. There is also an urgent need for machine translation in other

This is the situation, and whether Mr Street likes it or not, machine translation research will continue. Mr Street is doubtful, however, whether any such research can succeed. He stresses two points particularly: the difficulties in making and updating dictionaries and the difficulties in the actual translation process of dealing with

nuances of meaning. These difficulties undoubtedly exist, but he must be aware that some texts are vastly easier to translate than others. Personally I divide texts into two broad groups: "exact" texts and "nonexact" texts. "Exact" texts include business correspondence and texts in many branches of science and technology where every term must and can be defined exactly, "Non-exact" texts include texts in such sciences as psychology, where many nuances of meaning oc-

I am only concerned with "exact" texts at present, and in particular with business correspondence. The dictionary is small and changes rarely, and the sentence structure is simple. There are problems, but I feel hunted like a wild animal by incal people and finally bear brutalised. confident that they will be solved. We can later move to more complex "exact" texts. Dictionuries are larger and need a good deal of updating. Many, This being so, une witer. Su kind to your computer. Su by feeding it with easy smit for translation. Bring R is gradually until in the end sponds to your lighter syour most delicate austral your most. Herbaps in just it. however, are already in existence in the EEC in Brussels and have been specially designed and are particularly suitable for computer handling. I feel confident that the necessary techniques are understood for transating almost all "exact" texts.

It is when we come to the "non-exact" texts with their nuances of meaning that greater

GIM's

SINGLE-BIT microprocessor or applications requiring an inexpensive sequence timer and controller has been introduced General Instrument Microelectronics. Called a Sequential Boolean Analyser (SBA), the device is programmable in Boolean functions to facilitate the direct replacement of electro-mechanical circuitry in industrial applications.

Housed in a 40-pin package, the SBA comprises a logic unit, an associated 16-level stack to facilitate the execution of multi-term functions, a 1024 by 8 bit word ROM program memory and a 120 bit RAM which is used to store as many logic states. Thirty of the 40 pins are available as latched input/out puts, and can be mask prog ammed exclusively for either function. If the interface requirement is greater than this, inputs and outputs can be multiplexed together on com-

A range of hardware and oftware development aids have also been produced for the device, including an evaluation chip where the ROM has been replaced by an external PROM for program development work.

seminars

MICROPROCESSORS, already quietly carving a niche for themselves among computer users, have been brought even more into the arena of public debate by Professor E. W. Dijkstra's attack, and lann arron's defence of the rise of

of developments in micropro-cessor technology, by Howard Konstein, of Intel. Further meetings, held once a week, on Thursdays, will deal with a variety of hardware and systems software topics, and

systems software topics, and applications ranging from pro-cess control to image processing. Speakers will include Tony Houre, of Oxford; Professor Duncan of Prince of Oxford; Juncan, of Bristol University. and representatives of CAP Microsoft and University College London's Clip array proces-sor team (CW, February 24).

ABOUT 100 manufacturers and service companies in the micro-computer field are expected to at the Mikrodator 77 fair and conference in henburg from November 15

A different conference theme will be taken each day, covering microcomputer technology and



has already achieved such explosive growth that decisions on its implementation in systems are being taken by managers and engineers illequipped by experience.

Peattie, engineering director of the Electrical Research Association, has already been confirmed by early work carried out for the recently announced project, "The Engineering of Microprocessor Systems".

This, according to Richard

"While improving technology making microprocessors easier to use." Peattle said, "there are now more people with less skills involved in system design implementation, so that even better tools are required."

He pointed out that as microprocessors are introducing new technology and problems into many non-electronic organisations, software had now

The project involves the association in a detailed investigation into microprocessor system economics, hardware development aids and support software to be carried out in five interlinked phases. A principal objective will be to help systems engineers appreciate the techni-cal financial and managerial aspects of developing a microprocessor-based system.

The early work on the project has highlighted several trends in the industry that are not altogether beneficial.

For example, although support facilities for microprocessors are improving steadily, and the devices are achieving some comparison with minicomputers, the single chip microcomputer has, temporarily, reversed this trend. The physical cons-

been little corresponding activity in software. High level languages are becoming avail-able, but they put a higher demand on the development system, especially in terms of

In addition, the project has shown that much of the high level software now available contains bugs that can play havoc with a new product development schedule.

These initial views on the microprocessor have stemmed primarily from the 40 companies which have already agreed to participate in the project. The majority are end-user companies, many of which already have practical experience of implementing micro-based sy-

Chris Nabavi, head of ERA's Microprocessor Development Group surveys some of the wide range of equipment available from which

8-bit octal register

FIRST in a range of 20-pin octal microprocessor interface devices introduced by Memory Devices will provide high speed interface capabilities for bus interface capabilities for bus buses. organised digital systems

Future devices will include Manutactured in the States by Schottky and low power Monolithic Memories, the first Schottky latches, registers, device is an 8-bit octal register, buffers and transceivers.

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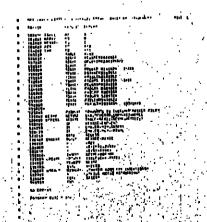
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View, September 15). This profound thought, which costs £95, will amaze DP practitioners the world over. No doubt infolech International Ltd will be inundated with orders for this revolutionary document.
Another astute comment in

the report, according to User View, is that the most important:

hased A 2,000 page report is A 2,000 page report is able from Eureka another which makes another contribution; to miden

Barron's defence of the rise of the micro (CW, August 18).

So a series of seminars, devoted to technical and applications aspects of micros, at Oxford University, is particularly timely. The first meeting is scheduled for October 13, at 4.30 pm, and will feature a review of developments in micropro-

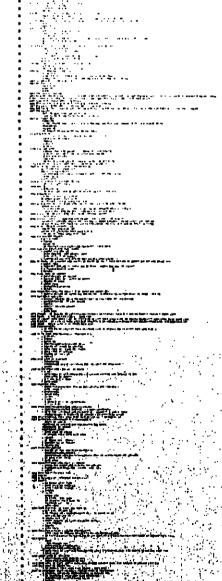
Venue for the seminars is the

Keble Road, Oxford. Admission

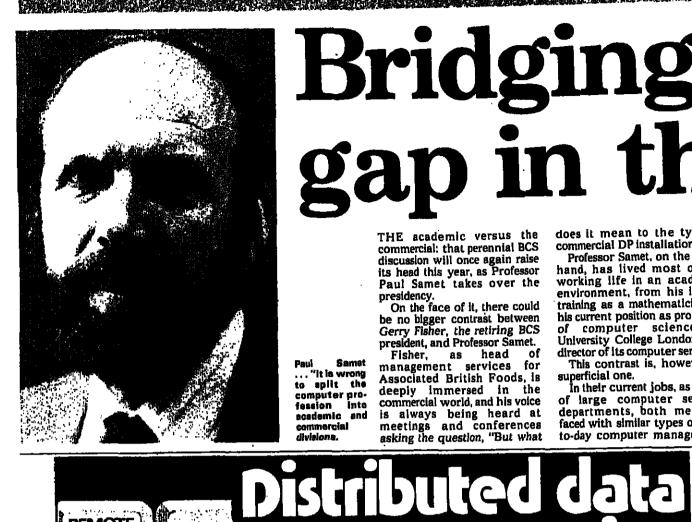
Gothenburg

the community, programming akls, microcomputer architecture, and maintenance and

Further information on the foundation, Po Box 5222, S-402







Bridging the gap in the BCS

commercial: that perennial BCS discussion will once again raise its head this year, as Professor Paul Samet takes over the

On the face of it, there could be no bigger contrast between Gerry Fisher, the retiring BCS esident, and Professor Samet.

Fisher, as head of management services for Associated British Foods, is deeply immersed in the commercial world, and his voice is always being heard at meetings and conferences asking the question, "But what to-day computer management

THE academic versus the does it mean to the typical commercial DP installation?"

Professor Samet, on the other hand, has lived most of his working life in an academic environment, from his initial his current position as professor

of computer science at University College London and director of its computer services. This contrast is, however, a superficial one.

In their current jobs, as heads of large computer service departments, both men are faced with similar types of day-

problems, although in different entice him.

And far from representing a schism in the BCS, it is a sign of health that the BCS can attract leading figures from different walks of DP life. In fact, Professor Samet hopes

there is no dichotomy of interest between the so-called academic and commercial worlds. "For a start, it is wrong to split the computer profession into academic and commercial

to show during his year that

ivisions," he comments. "if a distinction is to be made. it is between those involved with computing techniques and those involved with applying those techniques.

"I would like to show that each side can gain from the other new perspectives, new dimensions to their own work."

The computing technician, in Professor Samet's view, is primarily concerned with an understanding of "systems" as opposed to particular applications, and with an awareness of the theoretical concepts that underpin the

application.
This sense of the general rather than the specific; of the similarities rather than the differences underlying computer applications; of the long term systems requirements rather than the short term expediencies of daily DP life; these are the qualities that

Professor Samet believes the technician can offer the DP applications person. Most importantly, the technician should develop the technology that will enable applications problems to be solved more simply and

effectively. On the other hand, the applications person can give the echnician a "sense of scale and of real life experience" and pose a range of interesting and practical problems to be solved. with an awareness that a reasonable solution today is often preferable to a perfect solution next year; that a general approach is only meaningful if it can be

specific solution. Professor Samet himself is in a good position to see the mutually beneficial nature of a sides of the DP community, as he is responsible for running a large computer service as well as having a firm grounding in

computing techniques. During our interview, he suddenly leapt to the blackboard to explain how a mathematical understanding of the nature of multiplication could improve

His enthusiasm was not just for the mathematical theory, but the fact that the result could be put to practical use in processor. design. "And just think of the commercial impact if we could make a significant advance in understanding how to sort n

Like many other prominent figures in today's computer world Professor Samet never started out wanting to become a

While studying maths a Cambridge, he went along wint a friend to a lecture by Professy Maurice Wilkes, whose pioneering work on Educ u Cambridge was well under with "I did not understand a wat

Wilkes said," Professor Same His next encounter with

computers was when he joined the Royal Radar Establishment at Malvern, as a mathematich But gradually he became enmeshed with the computer, a a programming adviser on the Deuce system of the Royal Aircraft Establishment i Farnborough.

It was at this stage he realist that the most important the the computing technician care. is to help others to use the machine more easily.

"Deuce was a beast program in an assembler did not even allow the used: names. In order to make it with properly, every bit had! become a personal friend 1.

Although he found the RE. work interesting, at this sage still had no intention of main computers his career.

But, at the end of 19 allocations had been mak! the estublishment of a number computer centres, including at Newcastle, which was it part of Durham University. After considering taking

mathematics, he eventui plumped for the job as a letin computing at Newcastk was now under the spell of computer, and in 1961 became director of the Southampton compet laboratory. Six years later? moved to University Collection London to set up the confut centre and became Professet. Computer Science in 1970

"You know, it's funny "You know, it's lump, snys, "even just before lacenthe professorship, my motification was still asking me when lake going to get out of comparint of real' academic care mathematician."

Mrs Samet should not and for her son has made it detrof his own distinguished its.
But his mother's quest, should give Professors, some food for though, at some food for though, at the BCS.

translated into a workable

For she is not the only is a profession in the san and of the same slates established profession doctor, lawyer math

or accountant.
Although the BCs is him established part of he community. It has all the established part of he community. It has all the established part on the community. unquestionably a profession Same session way to bridging the special re-lacademic licensis as

he may not argument ab professionalism made an impor BCS as a boo

THE AUTOMATED OFFICE/IBS PREVIEW

increasing frequency, giving rise to new concepts such as word processing, and the

Forerunners of these and other eventual tems can be seen at the 1977 International Business Show to be held at the National Exhibition Centre, Birmingham, from October 11 to 20, and a preview is given in this

But despite the progress, doubts whether such systems will become an integral part of the office, or even whether they should be

The opening article, by Tom Stewart and Leefa Damodaran, discusses the merits and disadvantages of the office of the future, and the impact it will have on those who work there. A possible design of the future workstation, an integral unit through which communications and work will be channelled,

One forerunner, in terms of electronic mail, could be the Comsys network currently used worldwide by its designers, Hewlett-Packard. John Conry a systems analyst with

'Motorways' to the office of the future By Tom Stewart and Leela Damodaran

information processing system in which decisions are made and formation is transmitted, stord and retrieved.

Announcing

Version II

Yill leatures that

no other communications

monitor can match!

This is just one of the innovations that

can dramatically affect the success of your on-line system.

ARE MASTER and your

The appeal of the automated office is an improved throughput of information and decisions comparable to the sizeable ncreases automation has brought to production. However, at present, office automation has been patchy and fragmented, rather like a poorly planned roadway system. In ome areas the information flows along six-lane motorways hereas in other areas it crawls

ilong dirt tracks. One current "motorway" intolves photocopying. It is easy to generate hundreds of crisp, clear photocopies (if the machine is properly adjusted) and distribute these to all manner of people. Receiving or making a photocopy of a document or eport has become a substitute for reading it. In fact, it is impossible for anyone to read the sheer volume of information which photocopying has ex-ploded into the office.

Tom Stewart, a lecturer in Ergonomics at Loughborough University, has been involved in a number of research and consultancy projects in the man-computer area ranging from computer system evaluation and dialogue design to hardware evaluation and terminal design.

Leels Damodaran is a research fellow in the Departmen

of Human Sciences at Loughborough. She has, since 1970, been involved in teaching and a number of research and

automatic production of stanbills which computer technology allows us to churn out in their housands. However, someone or form and make a decision accordingly. Indeed many peo-ple are fully employed sorting out the queries and problems resulting from mistakes and errors which creep into such

These "motorways" unfortunately feed into "dirt tracks." Although computer databases, providing complex retrieval and access facilities, may be commonplace, a large part of the

documents and other originals which may be more than simply their apparent information content. These pose quite different problems in order to store and retrieve them accurately and efficiently. There are systems to automate filing cabinets using drawers

which run on electric motors or alternatively, an entire stock of physical documents may be microfilmed and stored on fiche reels. However, neither of these is entirely successful nor do they replace the traditional filing cabinet which occupies every office we know. One "dirt track" at present concerns the creation of documents. The creative process of writing a letter or report, in our case a least, involves scribbling barely intelligible marks on a piece of paper which are then typed up and corrected and despatched in a readable form. It is possible to use a dictating machine but this is an unusual skill which not everybody has, and subsequent transcription is very labour Another "dirt track" involves

ergonomic problems involve indexing, retrieval procedures It is in the latter three areas and now to resolve the difference between storing physical manifestations and data. For the automating the office will come creation process, there is a about in the near future. There number of options such are a number of ergonomic instant typing from dictation with automatic punctuation and problems associated with their

Turn to Page 18

the making of telephone calls.

that we believe the most

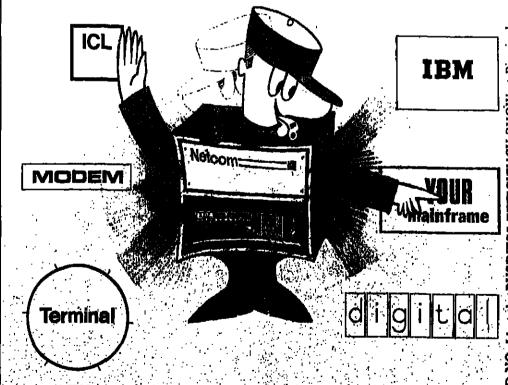
significant developments in

development and use. For infor-

mation storage and retrieval the

automated office workstation the information assistant nlikely ever to be built as one unit, but the components are available, or will be soon. Key: 1—Flat-bed document input sys-tems for copying (both local and remote) and scanning to input to computer system. 2—Loud speaking telephone with program-ming functions, 3—Nearly vertical A4 VDU screen for access to information system, word processin system and central records. 4netic board for holding source iments: 5-Microfiche reader, also accessible to computer con-trol. 6—Microfiche store. 7—Two loppy disc drives linked to loca cessor and piso to centra large computer network. 8—Floppy store. 9—Personal balongings

Flexible, Programmable Network Control



NETCOM is a customised network. communications processor and solves the problems caused by incompatable terminal protocols to enable devices with differing epeds, character lengths and codes to communicate with each other.

NETCOM can hardle a wide range of interfaces including CCITT V24 Telex and Current Loop as well as more complex of interference main was possessed with main rame computera:

NETCOM can easily be incorporated into existing networks and can undertake synchronous/asynchronous serial communications, time division multiplexing, line speed detection, data validation, error election and recovery, code conversion, etc.

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7000 lets you do it years in the making. By a business of making information easy to use. into — data entry, file

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the speed of processors. items more quickly," he added, with a glint in his eye.

computer professional.

Mathematics was his first love, and his first encounter with computers in 1951 did not

consultancy projects at the university. Her principal research interests have included studies of man-computer interaction and its implications for work design. Another "motorway" is the traditional office function involves the storage and retrieval of dard forms, letters, invoices and somewhere has to read the letter

the next generation of on-line software TASK/MASTER

> introduction of STD both within the UK and in Europe should have significantly speeded up the process. However, it still remains possible to take a long time actually to get into contact with the person you want. The local exchange may be busy or you may have to go through a number of secretaries to get to the right person. All in all, many phone calls turn out to be ot of work rather than a simple straightforward communication exercise: This either involves the secretary in a lot of work producing the numbers for the boss, or if you are dialling yourself it can be a very lengthy and frustrating procedure -especially with long telephone

numbers Two "motorways" at present therefore, are the production of standard forms and photocopy ing and three "dirt tracks" are the creation of text, the storage

THE AUTOMATED OFFICE/IBS PREVIEW REPORTED AND THE AUTOMATED OFFICE/IBS PREVIEW REPORTED AND THE RESERVE AND TH

Robin Webster presents a preview of the 1977 International Business Show, which opens next week at the National Exhibition

Centre in Birmingham. . . . The centre for 'wise business buying'

equipment will greet visitors to the 1977 International Business Show — formerly the Business Efficiency Exhibition — to be held at the National Exhibition Centre, Birmingham, from October 11 to 20.

Its theme will be "The centre for wise business buying".

open the show, will arrive by

BETA, the Business Equipment Trade Association, are expecting over 100,000 visitors during the 10 days.

Some companies such as ICL last seen nine years ago are making an appearance again after a long absence from the previous BEE exhibitions.

The emphasis of product ranges is of the "automated office" concept, with desk-top

ed furniture. Word processing administrative management. equipment is also prominent.

Running concurrently with the exhibition will be a range of seminars organised by the British Institute of Management looking at "the office as the administrative nerve centre of a

This will consist of a programe of 24 seminars, covering three major topics: computer

Moore Paragon

comes

clean!

and work areas. That is, until MCP.

Carbon-interleaved listing paper

has its problems. Handling it can

produce smudging on forms, clothing

Moore Clean Print, Carbonless print

produces copies-without carbons,

without problems. MCP is clean, odourless, easier to

handle and ready for instant uso.

Used at computer speeds, MCP

hammer shadow or smearing.

You get longer computer runs-with less handling time, because

there are no carbons to remove or

dispose of; and from the security

angle, there are no used carbon

With no carbons, MCP is all paper-

entirely eliminates disposal costs.

As an aid to ecology and environment, MCP makes better use

of natural resources. It is 100% recyclable-with no waste disposal

For efficiency and productivity in

data processing, nothing compares.

MCP business forms-designed

for the computer age.

100% usable. Cuts handling and

papers waiting to be read.

The ultimate in readability.

gives clear, sharp, permanent print out images—on all copies. With no

out forms. Coated paper that

Specific seminar topics will include distributed data processing, staff selection, training and development, management information, word processing

The seminars will take place in the Metropole Hotel, adjacent to the exhibition centre.

equipment, and productivity in

Univac will provide a specially

As the IBS is a focal point for the office equipment/business world, it is hardly surprising that some interesting new products which uses an ink-jet printers some interesting new products are being faunched there, including the Honeywell Page Printing System. This will compete with the IBM 3800, but its efficient with the IBM 3800, but its efficient with the IBM 3800 but its efficient with the IBM 380 is offline, uses different print technology and delivers and collates individual sheets of paper. Using an electrostatic print-

ing technique, the PPS operates under microprocessor control. reading seven or nine-track print image magnetic tape, and converting data from these to printable symbols. Copy can be generated at the rates of 90, 140 or 210 pages per minute; equivalent to about 8,000, 12,000

and 18,000 lpm respectively. It is aimed at all mainframe users, such as those with ICL, IBM and Burroughs equipment.

Hewlett-Packard will be launching a new desk-top computer system, the Series 9800 System 45. This features a 12-inch display, use of the new ANSI Basic, applications software and an optional graphics package with high-speed

hard copy output.

ICL has designed "Computer City", a new walk-round exhibition complete with precincts, a news kiosk and a theatre.

ICL's whole range of computer systems for small businesses and distributed processing applications will be featured, with the emphasis on the use of video terminals and direct data entry devices by unskilled staff.

Main items of the display will therefore be the 7500 Series of communication devices, and the 1500 Series of transaction systems. They will be driven by a 2903 Series and a System Ten 220 Series computer.

On the NCR stand wide range of computer, point-of-sale and microfiche processing equipment. Among these will be the NCR 850 minicomputer to be shown with a line and matrix printer, a television repeater screen, and four VDUs.

From its PoS range, there will be the NCR 255, online to an NCR 726 minicomputer with a laser slot-scanner checkout, and the NCR 250/7600 for the first time with an OCR/A wand for product code reading. Complementing these will be the NCR 2060 and NCR 2135 electronic sales registers, for the restaurant and supermarket fields respectively.

Word processing is now employed by many offices for the preparation of original documents and one of the companies supporting the trend IBM The IBM Word Processor 32 is

ECHEMISE AND TOTAL

One of the attractions at the IBS will be ICL's Computer City, a walk-around exhibit tion, which will festure precincts, a news klock and

● From Page 16

processing control system, will be launched by Lanler. Micro-based, it monitors, ana-

lyses and controls throughput of

A new range of word process-

ing equipment will be available from Computer Data and Machines. The range, entitled

Contessa, comprises three basic

models. First is the Contessa

5000, an 8K micro-based system

with three mini diskettes or dual

double density floppy discs, a 55 chps daisy wheel printer and an

The 6000 has a single line

display for text entry and

correction, but is otherwise the

same as the 5000. Top of the range is the 7000, which offers a

complete VDU and up to 64K main memory on mini diskettes

Unlimited

range

TWO significant enhancements to be computer output microfilm systems will be introduced by Bell and Howell at 188. These

are a stroke generator claimed to provide an unlimited range of character sets and a 6250 bpl

tape drive. Bell and Howell says that the

stroke generator can produce upper and lower case characters

in three sizes, and that these can be standard, Italic or bold. It can be retrafitted to existing

Bell and Howell 3700 systems.
The 8250 bpl tape drive runs at 75 ips and permits data to be input to the COM system's miscomputs.

scomputer controller at ap-simately four times the rate

i600K with dual density

Another word processing

company BDP (Word Processing), will feature its BDP 90

model with mini discs. The

system incorporates a daisy

keyboard, linked to dual minl

Three versions of the D2100

show, too. Daro Office

adpment (UK), will offer a

ctromechanical model 1350 to

stem. The 1720 is designed to

undle primarily invoices, stock

cords, sales ledger accounts,

systems, from the

Office computer system

printer with integral

proviously available, according to Bell and Howell.

designed for offices with a high throughput of typed materia and can handle input from most seven main information stands types of storage media it is and provide answers to inquiries based on the System/32 compa ter and uses removable diskette relating to more than 500 or fixed disc storage, Enter production categories on show. text can be edited and reloc-Hard copy print-out will be matted with new inputs.

The IBM Office System 6, a Univac will also display its on show, comprises the 639 Document Printer, the 639 UTS 400 and UTS 700 intelligent the Office System 6/450 To and languages as well as but 🖓 able to communicate with obe IBM machines.

The 6240 Magnetic Car. Typewriter enables typists! revise their work before produ ing the final copy as well's printing it out at 55 chps, wh the Office System 6/450 b modules to deal with the rare



needs of office corre These include an ink-jet pile
a diskette unit and a VDU

Wordplex will be denoted the second and the second and

These are Optical Reading, used to transfer from a suitable printed distriction the word profit ter into the word profit unit; remote community and the word profit inking of to permit linking of most wordplex systems via the phone for the transfer of the phone for the transfer of the phone for the transfer of the t phone for the trains and an interface in typestiff and an interface in typestiff in a equipment to simplify the manual property of the confidence of the con

hypolis and general accounts, and general accounting.
Anagnetic stripe card option is requirement.

and 7 will be shown

Infoted 7000 word process
equipment will be on wester
equipment will be on wester

Infotes stand in four wester

Infotes stand in 5000 word stands as d be showing its new Finan-Management Systems Pack-s for the first time. These the been designed with a inagement information blas, it can be tailored. the infotec 700 typewriter, the Infotec, the Twin be tailored to the with extra printer and at the printer and control at the printer and control at the printer and the printer an Computers is using

the IBS as a launch for its topputer, This is micro-based schuler, to 32K memory. ng needs are supplied free

pad for new products

IBS a launch

Altergo Computers will launch a micro-based system

that will run word processing software And the recently released Avenger systems wil be there, showing applications such as sales order processing, sales ledger and payrolls.

From the recently revived Compucorp, which at one time disappeared from the calculator/computer market, will come a new desk-top computer, the Compucorp 625. This has up to 64K storage, a mini floppy disc, a 40-column printer, a VDU screen and will use Basic and

In its calculator range, will be the Compucorp 326 and 327, which both feature cassette storage.

A new office computer system is to be introduced by Datasaab, showing the D12 MLC, which uses magnetic stripe cards for order entry and alpha-matching applications.

Texas Instruments will have its full range of calculators on show, from the TI 1000 at the bottom of the scale up to the TI 59 which is a hand-held programmable model.

Independent business computer manufacturer, CTL, will have a "hands on" presentation and demonstration at its stand. Visitors will be able to use terminals to run jobs on a CTL Model 8050 computer with 9.6 Mbyte storage, a line and serial printer. CTL's business systems are based on its Series 8000 line

Offered by Computer Ancillaries will be a low-cost data entry unit and a desk-top microcom-

Launched this summer, the MAEL 1841 data entry device uses either casette or diskettes, and can be user programmed. It incorporates a 4K micro, a VDU and a single diskette facility. The MAEL 2841 microcomputer is the first desk-top model in the range and incorporates 8K memory, a VDU, keyboard, twin floppy disc drives and a high-speed printer.

word processor from Dataplex will be exhibited, each incorpolating 128 character, buffered keyboards, enabling quick correction of errors. Also, there will be the proportionable Database. Tektronix is showing three computer graphics products; the be the programmable Dataplex D2900 with visual displays for 4015-1 large screen terminal and the 4051 graphic computing system.

The exhibit is designed to demonstrate the versatility of these systems in general business applications. Data capture will be high-

lighted by Data Recognition, which is showing the Datatag 4 and System 83. Datatag 4 reads computer and hand-written bar marks on price

stock movements.

The full range of Telexers from Saggicorn Electronics is being featured. These produce telex ready paper tape from a standard IBM golf-ball, typewri-ter, an IBM MCII word proces-

sor or the IBM 82 memory

tags to allow the tracking of

Canon Business Machines i launching its first reduction copiers. Its calculator range begins with the Ruler & liquid orystal display model through to the Multi 8 which has dual displays one above the other Making its UK debur from

the TLR (Transaction Log Reader), a high capacity sales recorder produced after a joint research programme with a US oil company. The TLR allows substantial reductions in paper-

THE AUTOMATED OFFICE/IBS PREVIEW

Data Maintenance, the on-site disc cleaning company, will have a full range of equipment and services on its stand, including the recently released DML 656 Disc Pack Inspector, as well as cassette and floppy disc cleaning equipment.

wand recognition systems are to Jefferson's Business Forms Division. Emphasis will be on photo processing order systems, regular payment systems, and shop floor data capture.

A number of new floppy discs, including a minidisc, and new disc cartridges for IBM-type 2315 and 5440 systems, are among the products to be exhibited by Willis Computer



Gracing the Altergo Computers' stand at IBS will be the woman racin driver Davina Galica.

Any person seated at this desk can do the work of three people.

Yes, one person to handle all customer accounts.

Calculate and complete invoices. Prepare statements. Process payroll.

Control the ledgers.

Control stock flow. All these procedures completed at electronic speeds with electronic accuracy.



a single input triggers four routines simultaneously. The 'desk' is one of Olivetti's 'A'

One person-not three-making

series electronic accounting systems. The same 'desk' that last year alone was chosen by over 13,00 U.K. firms to streamline their accounting.

> Do as they did. Consider Olivetti first.

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The same person is able, at the touch of a button to print out at computer speed all credit control figures and management on/off line data.

For details of the A5/A6 and other systems in the Olivetti A series simply clip your letter list ding of card to this advertise nient and send it to Peter White, British Olivetti Lity 30 Berkeley Square, London Wilk 6AH.



PARAGON BUSINESS FORMS

Paragon Works, London E16 1NW

MICHAEL WHITE

THE AUTOMATED OFFICE/IBS PREVIEW EVER since the day nine years because right from the early days the system has been manifestly successful - particuarly in saving costs. The end result of this interest came earlier this year with the

Architecturally, Comsys is fairly simple and straightforward. It is based on the company's established HP 21-MX E Series computer, the HP 2645A microprocessorbased VDU and a new operating system which is a modified version of the HP-2000 series' 94 Comsys locations worldwide

data communications system. It transmits internal "telex" type messages called "comgrams" between office locations in management reports nationally or internationally at high speed

the use of word processors to try

to avoid typing and retyping of

drafts from the unsatisfactory

With regard to telephones, of

course, the opportunities for

automation are considerable.

One big advantage will be the

possibility of programmed ex-

changes where you can, for

example, leave a message that a

call has been made or if a

number is engaged you can

ensure that when the line is clear your call will be connected.

Various imporvements like this

well certainly appear in the

business market very soon and it

should mean considerable sav-

that it may be impossible to use

your own telephone if several

people have instructed the

system to call them back when

your phone is free. For some

time, these developments will

occur more or less independent-

ly but what we are beginning to

see for the future is integration

Manufacturers will integrate

their equipment into other

systems or make link-ups which

were not previously considered.

For example, the Post Office

Viewdata system, essentially

linking the telephone and tele-

vision, provides a facility for

storage and retrieval of infor-

mation and ultimately for com-

munication. It becomes less

necessary to have your own set

of reference documents if you

have a Viewdata terminal and

can access some major source

However, other exciting com-

binations are possible. Once

documents are created using

word processing systems then it

becomes possible, having cap-tured the keystrokes and elect-

ronically transcribed the mater-

ial, to process and manipulate it

in a number of ways. There is no reason why it should be turned

Of course, there is the problem

ings in time and effort.

of office systems.

relatively easily.

creation of initial drafts.

EVER since the day nine years ago when Hewlett-Packard decided to develop an internal high-speed data communications system which uses ordinary voice-grade telephone lines, there has been a large degree of interest in the system shown by other users and potential users of data communications systems. The reasons for this are probably because the way a computer manufacturer tackles its own data communications asks is bound to be intrinsically interesting, and heaves a data from the arrival and the sardy of the sardy from the arrival and the sardy of the sardy from the arrival and the sardy of the sardy of the sardy from the arrival and the sardy of the sardy from the arrival and the sardy of the sardy of the sardy from the arrival and the sardy of th

and complete systems are taken into account on each document. Apart from these uses, the system hardware can be used for routine data processing functions in between transmissions.

When a user wishes to use the Comsys system to handle an outgoing message or document he keys in a job name pertaining to a particular document to start and is then taken through a series of requests on simple recognisable screens appearing on his terminal: each of these screens must be filled before the incomplete messages. The question and answer format compares very favourably with standard Post Office transmissions where no such controls are exercised.

Hewlett-Packard have developed their own series of office routines, but a special sub-system allows the user to design his own screens to suit

indeed perhaps at any time since

it can be transmitted to another

display terminal over telephone

wires, stored electronically, or

manipulated or added to other

So it becomes possible to have

an integrated office system with

a single means of holding,

transmitting or storing docu-

ever. All are handled in roughly

the same way and turned into

the same type of series of codes

and pulses. The resulting inter-

connected system is rather

complex and could lead to

problems. For example, it is easy

enough to operate a photoco-

pler: you press a button and you

get a copy. If you make a

mistake, you get extra copies and, like Mr Coleman and his

mustard, many copier manufac-

turers make a lot of money from

people making copies by mista-

In the worst case you may get

50 extra copies or you may even

damage the machine slightly but

when systems are integrated

mistake in operating the copy-

ing system you may well end up

Australia or cancelling your pay

cheque or sounding a bleeper in

the managing director's office.

The increase in complexity as a

function of the interconnections

is considerable. It is quite

different operating a system

from operating a single piece of

equipment or even from operat-

ing a series of pieces of.

As a result, in the short term

at least, there may be funda-

mental differences in the way,

ing stores directly from

t you make a

that the manufacturers sell their ing or have developed their own

systems will be based on particularly good position to

typewriters and computers. The meet the needs of clients.

relatively fail-safe.

however, at least it is

ments, letters, forms or what-

By John Conry

The Hewlett-Packard data communications system HP-2026, is a commercial equivalent of Hewlett-Packard's own in-house system, known as Comsys. Here John Conry, systems analyst/programmer at Hewlett-Packard, discusses the development of Comsys over the years and indicates how the system and its commercial equivalent might evolve.

Roneo Vickers office systems that the cassette typewriter is a

may well have grey steel filing device of the future because the

full Comsys facilities.

Once identified as such by the operators, these can be linked directly to the telex system via five-level paper tape without the staff having to re-key the message. Comsys also features auto-answer — an Ansafone-

cabinets and duplicators as

central concepts in their sys-

tems. These competing approa-

ches will place emphasis on different types of equipment. In

addition, it will no longer be a

matter of selling a piece of

her boss, plugging it into a

socket, pressing a few buttons and standing back to collect the

admiring glances. The selling of

complex office systems will involve a considerable degree of

tailoring to the needs of the particular organisation.

In the past, computer systems

have in many cases been sold on

their potential rather than on

their actuality. For example, the

salesman promised all sorts of

possible facilities and the custo-

mer had to work with the

company and his own systems

people to make the equipment

this, of course, worked for a

ime but customers are becom-

ing far more demanding and it is

no longer possible for manufac-

turers to get away with this to

in the office systems market it

will be so competitive that this will not be possible and it will be

essential for the manufacturers

perhaps sell their systems with) expertise in analysing the func-tions and the needs of the office.

This will involve finding out

how best to fit automation into

the existing office or perhaps

redesigning the office to suit the

As a result there may be a

change in the type of companies

ment consultancies are develop-

offering systems. For example, several software and manage-

to sell with their systems (or

type message-receiving facility which will accept incoming data

use is the distribution of management information. A mainframe computer in Geneva reports and these are sent by Comsys to various international offices. As the amount of local data processing increases with the availability of HP-3000s. type of use for Comsys is likely level, but the system certainly dealing with the processing of

also likely to continue to be used for dissemination of reports on a volume of data handled k_i

Apart from these regular functions, Comsys also gives the company the ability to transmit one-off pieces of information. A notable example of this was when a user within the company had been trying for some time to obtain a copy of a particular program not available locally. out he was able to obtain a copy of the program from the US via Comsys in less than half an hour: transmission itself took

in the UK there are at present just two Comsys receiving stations; at Winnersh and at South Queensferry. Most UK data is routed through Winnersh, and all outgoing traffic goes to the HP European message-switching centre in Geneva. Every day there are at least two complete "cycles" comprising one outgoing session and one incoming session, morning and afternoon. On a typical day, the UK Comsvs might receive 350 messages from other parts of the world, with approximately the same number of outgoing ones.

Comsys Central in Palo Altok increased by a factor of 80,10% million characters per day, A the same time the cost of internal toll charges madely HP's corporate department h increased only by a factor five. In fact, since 1973, t charges have actually con down by 60 per cent and them: to the user department transmitting a 500-character message, about 80 words, ந்து

and the increasing use of the high transmission speeds h undoubtedly been the main factor in these improved The Comsys system termin are at the moment transmits at 2400 and 3600 baud and it. could increase to 4800 if there: a successful outcome discussions now going between the company a various telecommunication

In the meantime, there a

a paitry seven cents in the US

possibilities on the horizon Comsys. One is to explo Hewlett-Packard's versatile i 2645A display terminal a surfurther, and use it as an offer ending and receiving state for Comsys. In a way the UK: an ideal proving ground for the development, as there are 1 number of branch offices Li large enough to justify install: full Comsys facilities, be

degree in mathematics. All you need is a logical mind," our mathematics leacher had told us. However, the logic of this situamaterialise from for new installations if every existing user made no allowance for the training of new

> 'Catch 22 rules OK," I earaged me to the point of indency. At that time I working as an operator for You might for instance, the midnight to eight shift.

Data processing gradually lost its glamour for me. concentrated on devedirections have er in other ons, but as it turned ahead as a professional. I

dressed to you but specitally to the opening before it is converse confidently and mined people. The computer industry is

ike a game of musical. fence that instead of chairs rence that instead of chairs being gradually withdrawn, they are added with every pay installation. The existing statistics, and computer Your salary during training players are the expension of the outside are personnel) hoping to join in the forthcoming, upgrade your salary substantially.

Another valuable course offered at various colleges and polytechnics is that of the British Computer Society, the standard of the Part examination being recognised as the equivalent of an honours degree in computer

for those currently employed in the computer field, but the choice of options in the Part I examination can be so arranged as to make this requirement not essential. Further details can be obtained from the society.

Lastly, colleges and polytechnics offer a variety of courses ranging from the Higher National Certificate Computer Studies or Business Studies (Data Processing) to non-examinable courses in certain programming languages. If you live or work in London the ILEA Floodlight booklet provides a wealth of information and is available from newsagents.

such as the Directory of Further Education for wider national coverage. I have, myself, recently passed the final examinations of the HNC In Business Studies (Data Processing) and been successful. This has undoubtedly helped in my applications.

One of my fellow students, Diane, was a secretary in Scotland before comafterwards she joined ICL as a secretary.
I had asked her why she

had started the course, and her reply was something to the effect of: "As a secretary I felt that my career was to stay there, you will no rather limited. Any promotions would have left me doing the same type of job, even if not for the same You have to fight off any

> A few months later, in the second year of the course, Diane learnt from her employers that she would be accepted to their gra-

ficely to those who, like divertised.

The meantime, assuming their way into a computer and their way in the computer and their way in the computer and their way in the computer and thei of career, Employers are son or another full-time some general points. An always looking for good, study, try to enroll in a employer's reluctance to part-time course with a train unskilled personnel is computer content. Some universities and consider that you will not be polytechnics offer four to of much use to him during

Knight Contracts

Programmers immediate Contracts

BIRMINGHAM SIGLASCOW BRISTOL AND ESSAY OF 872-2011 O24-386 4838

RPGII Various locations - all machines. Ventek Datashare programmer for London.

IBM-COBOL/BAL/PL1/RPGII/CICS ICL-1900/2900-COBOL FORTRAN-PDP/IBM/Data General

This is just a selection from our current list. We have a lot of contracts in a lot of areas, so if you have at least 4 years' programming experience, phone Richard Kaluzynski or Sue Gillam on 01-491 4706 to find the one that's right for you.

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As long as you have been operating for 21/2 years or more, we can fix you up with a contract that will lift your earnings and build your experience. Maybe one of the contracts we list here is the one you're looking for. If not, don't worry - we've got plenty more on our files. ICL GII, GIII, Man. Exec. - All areas

-London and Midlands -Leeds -Oxfordshire

IBM DATA 100 -London

For further details or advice on these and other contracts still in the pipeline call Sue Smyth, June Mogg or Jane Asbury on 01-491 4706.

Knight Recruitment

Top money for COBOL **Programmers Central London**

Our multi-national client is prepared to pay handsomely for mature, career-minded programmers with at least three years' COBOL experience, ideally IBM DOS/VS. Benefits and career prospects match the high salaries. Ref. JP/0021 London

NCR Operators up to £3900 North London

Specialist electronics company needs two experienced NCR operators to work an 8-3, 1-8 shift system. The imminent arrival of new machines - Univac and IBM males this a real opportunity to gain new experience quickly. Ref. AM/0022 London

The most unusual career opportunity of the year?

Our client is a metal and commodities broking firm hardly an everyday business. They now need a young man or woman with ability and experience in figurework to train for an important role in data control, and to build a career either in computing or in metal broking. Starting salary negotiable around £3,000; 9.30 start, and offices that are easy to reach if you live South of the River, Ref. AM/0025 London

Interactive systems and database Up to £7000 for analyst/ programmers and analysts in **West London**

International petro-chemical construction glant needs able, ambitious men and women, ideally technical graduates, with experience of high-level languages on ainframes. Applications are many and varied, hardware includes IBM, Univac and minis, prospects include overseas travel. Ref. JP/0012 London

Systems analysts around £4500 Lancs.

Large but friendly engineering company with a highly ophisticated production control system needs analysts with around four years' DP experience, and ideally with experience of on-line, real-time systems using ICL 1900 machines. With a production or cost control system to your credit, here's your chance to gain more experience, and ultimately to lead your own projects. Ref. B/054 Birmingham

Senior Programmer Analyst Programmer Analyst up to £5000 Rural Cheshire

The Company is a small but stable bureau offering a range of specialised services including financial packages and teleprocessing. The present configuration is an ICL 1904 operating under EXEC, soon changing to two 2960's under VMEB.

The Senior Programmer should have two years' COBOL experience, and will ideally have structured programming experience, although training will be given if necessary. Analysts will already have some projects to their credit, preferably in a TP or database

All these jobs offer you the opportunity to see your ideas implemented in a go-ahead company. Ref. B/123 **Birmingham**

Bureau programming in Birmingham c. £4000

As a Senior Programmer with this highly respected bureau, you'd work in FORTRAN on a wide range of tasks processed on a Honeywell 66/07. With an HNC or ONC (a degree would be ideal) and at least two years' FORTRAN experience, you'd have plenty of career opportunity in a bureau that's large and still growing. Ref. B/050 Birmingham

RPG li Programmer £4000 plus Northants

Small engineering company with strong connections in the oil industry needs a programmer with three years' experience of RPGII to take a place in the Company's small, friendly DP team. Benefits include relocation expenses, and the area has plenty of low-cost housing. expenses, and the area has Ref. B/056 Birmingham

Knight Computer Services Limited, 14 Old Park Lane, London WIY 4NL.

01-4914706 Knight 021-7728331

Knight Computer Services Limited

was were the second of the sec

Staff Services Division of BOC Datasova Group and Services Association

For a better to morrow, act today. To speed up your application or to get information on opportunities in the

launching of the commercial equivalent of the system — the HP-2026.

DOS III system. Each unit can data can be filed for be equipped with tape drive and transmission, thereby reducing line printer. There are altogether the possibility of incorrect or within HÞ. Despite its simplicity, Comsys is much more than a dedicated standard

company parlance. It offers the screens to cope with particular facility of distributing lengthy and is used for the handling of his particular requirements. The inter-office business such as sub-system is called Data Entry orders, invoices, statements and Application Language, DEAL, credit notes. The differing and allows non-programmers to requirements for repairs, parts make full use of the relevant

Incoming messages are first stored on tape and are then processed according to job type. in Hewiett-Packard's Winnersh Offices, most incoming comgrams are printed on a high-speed printer and distributed by hand internally. However, the Winnersh office also acts as a receiving and transmission station for conigram messages from other UK offices not yet equipped with

automatically, even when the computer room is unmanned.

comparative in raw processing power to an IBM 370/145, this to drop off on an international gives the company flexibility in

prices are still relatively high

and having gone to the trouble

of electronically capturing keystrokes it seems a terrible

waste to immediately print it on

a piece of paper even though you

do have an electronic record of

what it is. They are not

convenient than typing on to a

television screen and you can

then do the editing much more

readily. What they gain in the

naturalness of their initial

presentation they lose in the

unnaturalness of their editing

Secondly, with electronic

ne network there is very

office systems linked to a

little limitation on where the

equipment can be placed. The-

refore it has been suggested that

in the future people will work at

home doing an hour or two of

work and then going back to growing vegetables. This facility

may work in some cases; but

what we believe it will not do is

replace most people's need for a

place of work. After all, we get

more from work than simply

performing a task and earning

money. Many people will still want a place of work, to have

workmates, be able to use the

company's telephone or make

private photocopies or chat to

the person in the canteen.

The other important area of

Towards tomorrow's office

None of these developments will occur overnight and for many years there will be varying degrees of automation in diffe-

greater need to apply ergono-mics knowledge to office system paper you can move it and with large integrated work it is essential that the design is right. Indeed, it may never be in Sweden or Japan where workers can take regular breaks for gymnastics but this does not

However, that is not necessarily true for everyone, and there will be some people who may well be prepared to do their work, say at home, in isolation, either because, for example their children have to be looked after — this will apply to both males and females — and therefore the work has to be fitted round baby-sitting or

integrated office systems. One versions thus contributing to the because work has become a less can envisage that the IBM office system and they are in a important part of their lives. because work has become a less Another myth which we Ypewriters and computers. The meet the needs of clients.

Xerox office systems will be Finally, a few personal biases will disappear. Certainly there based on photocopiers and the We personally do not believe are many cases where the

instantaneous viewing of documents will greatly extend the possibilities of existing telephone conversations. However, there is some evidence that for more delicate and complex communications, there is something about face-to-face which we think makes it an process which people

We also believe that the secretary in the future will become far more of an information assistant and equipment handling assistant and therefore a more equal member of the

rent offices. Finally, there will be an even

design. At present, people have considerable scope for adapting and modifying their immediate working environments. If you are trying to read a piece of ight is more suitable. However, stations with everything to hand right to construct such work places. They may be acceptable

seem likely in the UK. A certain amount of mobility not only is desirable but may be essential, provided that it is not taken to extremes, to avoid postural problems and even eye strain and headaches.

The future office work station shown in the drawing will perhaps never be built. The technology will certainly exist but the system will probably bear more resemblance to a genuine hi-fi-system than to a

The HP-2645A is a cartide based terminal which feature "soft" or near programmat key facilities which could used for storing screen formate day's branch messages 1 transactions on cartridges grade lines to a Comsys state at either Winnersh or h

to the reality of an automa office; in fact, Comsys can be request the status of manager can request production of a sales report Future enhancement Comsys will include the fac to attach printers to ler to attach printers to terminal stricter security to prevail unauthorised use of confident data, use of mini casseles storage and retrieval of its and a priority rating which enable the terminal respontant time to be controlled.

This terminal could record it. later transfer this over voice

Altrincham, the compan Northern office, which will h getting a complete Comiy. station in the near future Another development over the coming months is availability of the HP 7920 5 Mbyte disc as an optional extra Recent developments in the realms of the mini and mino computer are bringing us near

configured in such a way it certain computerised of functions are already possible. For example, an office clerk a terminal on the desk cat 0; in a telex message desined in another company office, of

time to be controlled.
Soon, the typewriter and fine
Soon, the typewriter and fine
cabinet will be things of the as
with satellite communication
and high speed transmission
data will be moved over the lad data will be moved over the earth at a rate unhead of the earth at a rate unhead of the use of the use of the computers in the office will reduce many of the laborous manual tasks associated with office work, leaving people it of use that skills a bette advantage.

sarily need any qualifica- among the spectators may tions in mathematics to be leave some of them bewilemployed as a program- dered and some of them mer." our mathematics tea- may despair of ever finding a chair. What I'm trying to say is: don't stand there feeling sorry for yourself himself about to embark DP managers will not come upon a lucrative computer career involving a spell as a So send off those letters It is intended generally

now. The first four or five may tax your writing skills but after a while you should find it no problem. Do not a programmer right away be discouraged by rejected applications. The more times your

The scramble for chairs

Owen Kelly 061-872 4211

Getting your

in the door

By Boris Sedacca

"OH, NO! You don't neces-

school exams. He was

rogrammer and progress-

Great," I thought. "I can

jump the queue and become

without wasting my time on

a painful period of study at

university, which I cannot

afford anyway". Computers

me and I thought I'd like to

become a respectable tech-

With this in mind I sent

off various letters to users,

banks, retail chains, etc but

ran into the same wall no

matter from which direc-

only be considered for

e to systems analysis.

name crops up with a

Are you having difficulties in finding your way into a computer career? Employers are always tooking for good trained people - but what training, and how to get it, is a real problem for the prospective entrant. Boris Sedacca, who tion I approached; I could found out for himself. offers advice on getting

started. gining, or, wait for it, a particular person the more likely that it will be at the forefront of his mind when the time comes for him to look around for new pertion evaded me completely; sonnel or to pass your name where would trained people on when one of his colleagues is looking around. In my case, a well-timed letter changed my fortunes dra-

Getting back to my ana-logy with musical chairs, the more you join in the The absurdity of it all scramble the more likely your chances of success as you start viewing the field

surance company. On consider a sales career with iday nights, if we were at a manufacturer to start li party he would leave at with. If after a while you the mid-lich order to start in the mid-lich order to start doubt have made many useful contacts.

sense of urgency in finding out I should have persevered. My friend had become a years. Tenacity will pay off in the end. By all means find was working normal another job in the meanare but had moved well time but keep sending those duate training course beapplications out; and do not ginning after the summer; act on advertisements the first non-graduate to be Do I hear you say, alone, as they normally accepted. have problems of my own"?
Well then, this article is not addressed to you have addressed to you have a cations to the advertiser. If of an intermediate standard possible, try to anticipate and should enable one to

he their way into a compu-

Duncan Bransom Recruitment

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A major development programme at HERTZ, the world leaders in the car rental business, means that they need the services of an additional senior programmer at their European headquarters at Isleworth, Middlesex.

The systems will be developed to operate on I.B.M. mainframe computers with non-I.B.M. minis front-ending to them.

Applicants should have at least five years' Cobol programming experience preferably using O.S., and should already be working as senior programmers or chief programmers.

Please write or telephone for an application form to: Roger Griffiths, Duncan Bransom Ltd., 37 Hillcrest Road, LOUGHTON, Essex.

Duncan Bransom Limited

WEST SUSSEX COUNTY COUNCIL County Surveyor's Department

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We are looking for somebody with an appropriate degree and experience of Fortran and IBM O/S to help us in this work and to co-ordinate the computing efforts of the engineers and technicians in the Transportation work of the County Surveyor's Department A background in transportation planning would be beneficial, however, we would still be interested in hearing from people who are

keen to broaden their experience in this field.
Phone Roger Jones on Chichester 85100, ext. 585, to find out more about the job and our extensive computing

Removal and resettlement allowances are available in approved cases plus temporary lodging allowance. Temporary accommodation may also be available.

Application forms from The County Surveyor, West Sussex County Council, Chichester, Sussex, P019 1RH. Tel: Chichester 85100, Ext. 413/456. Closing date: 24th October, 1977.

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This is a challenging position for someone to play an important part in the future development of the Council's Computer facilities, which includes: The Council's existing tape based ICL 1901, being replaced by a mixed tape / disc configuration which is due to be completed by September, 1978.

The successful applicant should be able to demonstrate proven management ability and experience and knowledge of PLAN, COBOL and other suitable programming languages. Experience of disc and tape based systems, communications and the conversion of systems to high level languages is required. Housing accommodation may be available in approved cases and the Council operates a resettlement and removal allowance scheme. Casual car user allowance will be paid.

plication forms are available from the Personnel Application forms are available from the resource, and Management Services Officer, Chief Executives Department, Council House, Coton Road, Nuneaton, Warwickshire CV1 15AA. Closing date for applications 24th October, 1977.

NUNEATON

PROGRAMMER

We have a vacancy for a programmer to assist with the maintenance and development of systems operating on our IBM System/3. Although preference will be given to those with RPG II experienced programmers with other languages will be considered.

The work is both interesting and challenging, and the environment friendly and professional. There is scope for personal development and the opportunity to make full use of one's abilities.

in the poultry production and processing industry.

The Head Office is situated in a pleasant rural area

Application forms available from: **Group Personnel Manager** G. W. Padley Limited Anwick, Sleaford, Lincs.

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To work on Systems International, a monthly computer magazine with offices at Upper Norwood The Job enteils technical writing using knowledge of computer science, electronics, systems analysis, design engineering, soltware, etc., with an opportunity to learn about publishing: In the first instance apply in writing to: The Editor, Systems International, 108 Church Road, London, SE19 2UB, Tel: 01-771/3614.

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Assisting in the day to day turning of the College Computer Control (PRIME 300 Computer) air luthing

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Ref. 77/7/18

Dersities University was increpentable 1922 on 1 April. 1977, shinethed most it be been on 1 April. 1977, shinethed most it be been as the control of technique as a state Codings of Victors of Debugs in 1972, shinethed to the control of the codings of Victors of the codings of the

Applications are invited for the femalism the in Competing. The School of Schools is from distribuse: Competing and Mathemics, Bulgital and Namith Schools, and Competing of Physica Sciences. Each division has at distribute administrative chalmens, who report to the few of Sciences. Considers should namedly hold a degree?NHC or gravalent qualifica-tions and have exponent or a st least oracle the FORTRAY, if the following languages. FORTRAY, BASIC an Assemble language.

of Sciences.

All proceed the Computer Science of the Medical Computing and Mathematics confects them he data processing and computer Science in the science of the science instituting the Computer Centry SALARY LECTURES GRADE (L.) 311 to £5.271 p.a. starting salary according to qualifications and experience (inclusive of all supplements an

inclusive of all supplements and londer Allowanco)
Further particulars and application forms to be returned within two weeks of the appaarance of this advertisement available from: The Chief Administrative Officer, Willesden College of Technology, Denzil Road, LONDON, NW10 2XD. Tel: 01-459 0147. The School of Sciences is bested at its Year Ponds: compute and a large MCSTRIBERS Sciencescare applicate will be installed but area 1978.

Butary for a Professor to correctly \$130,700s

Salary (or a Prolissor to commity MALPITy as Applications about quate the relayeus more and citation is that corrections with the more and addresses of three sections relayeus mile is record prolingage.

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(24 hours) EFFECTIA GRAVIS

Surrey £3800

Whittaker Life Sciences Caroop is operating a Health Services Project for the Saudi Arabian Government which includes hospitals in leddah. Jabak and Khamis Mushayt. Due to the expansion of the project and the resulting requirements for additional computer systems, vacancies have recently arisen in the leddah Data Centre tor:

To U.S. \$18,000 P.A. Tax Free **Systems Analyst** A minimum of two years experience in systems plus two years programming is required. Practical experience of IBA3 autor 370 under DOS is essential and

some knowledge of RPG II or BAL would be useful. The work will be initially on Supply Finance and Employee-related systems RPG II Programmers To U.S. \$14,000 P.A. Tax Free

A minimum of two years programming experience is required using RPGII on IBM equipment, knowledge of DOS VSPOXVIR is desirable and some experience with another programming language would be considered an

The initial contract is for a two-year period and applicants must be single. or manied with no children. The contract includes tree accommodation. six weeks vacation each year free medical care and a contract completion bonus of one month's safary.

The successful candidates will have the opportunity to save a considerable sum of money, whilst enjoying the outdoor activities in the sunny climate of stable Middle hastem country.

For further information and an application form, contact: Whittaker Life Sciences Ltd., 76 Grosvenor Street, London WT. Telephone 01-499 4 895.



for an Agency

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NORTH AND MIDLANDS AREA

SYSTEM PROGRAMMER, WEST YORKSHIRE, £3.6K by programmer men steel in ay tome weath plants, of somety a baselement in user problems. I make deep of quality countries

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PROGRAMMER, LEICESTER, £3.5K

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ANALYST/PROGRAMMER, LEEDS, £4.5K pend pagamang background with communication some

JUNIOR PROGRAMMER, YORK. Salary Neg. Junear position developing to earlier to computers in communication developing to earlier programment of the

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assist in developing, customising and installing text processing systems for the Graphic Arts industry he systems are based on the DEC PDP-11 series computers, and since the successful applicant will be expected to make an immediate contribution to software

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SALES EXECUTIVE

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NA INTERNATIONAL, the world's leading supplier of Portable Data Capture and it burrently expanding the Europeen operation. As part of this planned on MSI seeks self-motivated, experienced sales executive to be responsible from of England and Scotland.

costalul applicant will be based in the Manchester or Looks nice, and will have a successful track record of systems selling to the Return and Distribution

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City Treasury - Computer Services

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£1,215 - £2,853 plus 14% shift allowance (+ Phase 1 and 2 Supplements)

The Authority's computer centres on an ICL 1904S with 192K core operating under George 3 and involving extensive use of EDS 60's, magnetic tapes plus a wide range of other peripherals and terminals. Two-stift working is in operation. Operators with experience of ICL 1900 series equipment operation under George 3 are required. operating under George 3 are required.

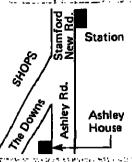
Applications, giving full personal and career details, shoul sent to The City Treasurer, Town Hall, Sheffield S1 1UL.

ANALYSTS & PROGRAMMERS INFORMAL OPEN EVENING IN ALTRINCHAM Tue, Wed, Thurs; October 11, 12, 13; 6-9 pm.

Thinking of a change . . . ?

Then why not call in to discuss a very wide range of local career possibilities with Quadrant Software or through Quadrant Recruitment.

Drinks, snacks, ample car parking. It will be well worth an hour of your



California (1900) aliman in dia menerahan langgaran QUADRANT COMPUTER SERVICES LTD. Ashley House Ashley Road, Altrincham. 061-928 8302

Internal Sales Engineers

Data Communications

COMMUNICATIONS EQUIPMENT in the U.K. and Europe, have vacancies for two people (male or female) to operate in the U.K. Sales Department as Internal Sales Engineers in Reading. As part of a highly productive and enthusiastic area team they will be responsible for internal liaison and operational functions in the interesting, commercial field of computer related equipment. The individuals we require must have a high motivation ability as well as a certain amount of technical ability, but above all an enthusiasm which will be mirrored to our customers. They will have a real desire to progress in an active and thriving commercial

They will be working with Sales Engineers who have progressed to these positions from Internal Sales Engineers and therefore the opportunity for advancement is considerable.

f you require further details of these positions, telephone our U.K. Sales Manager, Alan Gill, on Reading 85282 or alternatively write giving full details to :

Director of Finance and Administration RACAL MILGO LIMITED Bennet Road, Reading, Berks. RG20SS.



Project Management in a Systems Development Environment - £6000+

Cadbury Schweppes have established a number of project teams involved with the development, implementation and maintenance of on-line computer systems using new techniques in addition to the usual batch techniques.

The increasing scope and facilities of our Bournville com-Puter centre make the management of these teams an exceptional challengs to imaginative computer professionals.

The Manager we are looking for will be a graduate or professionally qualified specialist, aged 30+. He or she will be able to demonstrate a high degree of technical skill and experience of on-line techniques in a data processing environment. Personal qualities will include the greative think and a firm grasp of the necessary management skills

Current Equipment IBM 370-145 + 370-158 mainframes

Future Plans 2 158 main frames to support increasing CICS on-line and IMS data base demands MVS operating system

3800 laser printer 3850 mass storage VSPC for Interactive program developments.

ing necessary for the design and maintenance of flexible colours that will service many users; drive, determination color flexible and a firm grasp of the necessary management skills.

A salary in excess of £8000 p.a. is envisaged and there is a wide range of executive fringe benefits, including generous. relocation expenses, Excellent career development opportunities exist within the Cadbury Schweppes Group. Does your background and experience qualify you for this

challenging and rewarding opportunity? Then telephone or write for an application form to the Company Recruitment Manager, Cadbury Schweppes - Limited, Bournville, Birmingham, B30 2LU. Telephone 021-468-7343

The same of the sa

(NOTE: A complementary appointment is to be made with the emphasis on the development and implementation of financial systems.

For further information please telephone)

YOUNG PROGRAMMERS

"If you are career minded read this advertisement!"

SALARY CIRCA £4,000 P.A. PLUS ABOVE AVERAGE FRINGE BENEFITS

CAMBRIDGESHIRE/NOTTINGHAMSHIRE

Our client, a privately owned company that supports and sells an integrated series of products being amongst the most successful software products available within the United Kingdom. These products enjoy acceptance in many major mainframe installations, and are generally regarded as being the most complete and best supported in their particular application area. INTERNAL DEVELOPMENT, coupled with our client's GROWTH PLANS, has led to the necessity of recruiting further PROGRAMMERS who wish to develop their careers and become KEY MEMBERS of the company.

Interested candidates should have:

- * Six months' to two years' COBOL and/or BAL and/or Plan experience gained in a formal programming
- ★ The necessary qualities and attitudes to work in close contact with clients.
- * A preparedness to travel. * The ability and desire to develop both your skills and your career.

Our client offers:-

- * THE OPPORTUNITY TO BECOME INVOLVED IN SYSTEMS DEVELOPMENT AND IMPLEMENTATION * COMPLETE AND ON-GOING TRAINING FACILITIES
- * A STIMULATING WORKING ENVIRONMENT AMONGST PROFESSIONALS

* AND ABOVE ALL, PROVEN GENUINE LONG TERM CAREER PROSPECTS.

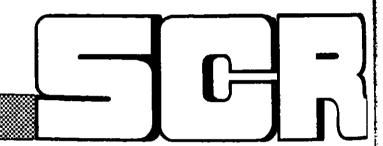
THE COMPANY OFFERS EXCELLENT (ABOVE AVERAGE) FRINGE BENEFITS INCLUDING: Interest free car loans/substantial travelling allowance/four weeks' holiday/11% non-contributory pension scheme/free BUPA/interest free personal loans/substantial relocation assistance/etc.

If you welcome the challenge in a stimulating, professional environment where your own personal development is assured then contact without

REG HEATH

021-236 3781

REF. NO. 77/0/1



NCR offers Systems Analysts rare opportunities in Marketing.

NCR's Commercial & Industrial Sales Division is where you'll find the scope you probably won't get if you simply stay with an alysis.

Where you can use your business experience and flair for innovation to earn yourself, not only a highly competitive salary, but also, if you want it, a licket on the route to hardware selling. Which is where the really big incomes are

You will be involved in marketing and promotion of NCR systems for the manufacturing or distribution ndustries — liaising between the technical, where you've been, and sales, where you may wish to go.

To do the work, you need to have had plenty of

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You will be thoroughly trained. You will receive a full range of NCR company benefits. Since you will be expected to travel a fair amount, you will be paid expenses, too. But you will also be expected to live within daily commuting distance of London.

Rare opportunities. Don't miss yours.

Write to Harry Redington, Personnel Controller NCR Limited, 206 Marylebone Road, London.

KINGSTON POLYTECHNIC COMPUTER UNIT

PROGRAMMERS

i) AP5/801 grade £3825-£4845 + £312 + stage 2

Applicants should have expenence of applications programming in the fields of engineering and the sciences, preferably with a degree in an appropriate subject. A knowledge of the 1900 Gino-F system would be an advantage. It is intended that the person appointed will devote half the lime to the supervision of documentation within the Unit.

#) AP3/4 grade £2922-£3702 + £312 supplement + stage 2 + £285 London; allowance.

The programmer is required to assist in providing a service to users mainly in the fields of science and technology. Experience of graphics systems (e.g. Gino-F) an advantage and condidetes should possess a degree or other qualification in a relevant subject. Knowledge of Elliott 4120 an advantage.

Hi) AP3/4 grade £2922-£3702 + £312 supplement + Stage 2 + £285 Loridon allowance. Applicants should have experience of applications programming in either engineering or commerce. For the latter's good knowledge of Cobol is required. Possession of dagree or other qualification desirable. Knowledge of Ellott 4120 an advantage.

Futher détails and application (orms from Assistant Registrer (Personnel), Kingstor Polyteorinic, Pantityn Ross, Kingston upon Thames KT1 222: 01-548 1386

SAMMIE

Computer Aided Workplac

SAMMIE is a computer sided ergonomic design system used to design equipment and workplaces. A vacency exists for a rumenter research estistent to join this S.R.C. funded team in the Department of Production Engineering and Production Management. The successful applicant will be required to anterpast and solve problems for potential users in industry and public battless and so encourage the use of SAMMIE in new application sinces. Extensive computing facilities are evaluate. Salary in range £2,004.

Further defisits and application forms, returnable not teter than 1 7th October, 1977. Iron: the Bish Appointments. Officer, Othershy of Nothinghem. University Park, Nottingham NG7 28D.

NORTH WEST THAMES REGIONAL HEALTH AUTHORITY

COMPUTER CENTRE

Colney Hatch Lane, New Southgate, London N11 3DW

The following vacancies exist, based at the Regional Computer Centre at New Southgate, for experienced computer staff to work on a variety of accounting. payroll, medical and scientific applications. The Computer Centre is equipped with a large ICL 1904S computer supported by document readers, REDIFON key to disc systems and NCR microfiche processor. In addition a wide variety of mini computers are installed in individual hospitals and laboratories around

Ref. No. 194 SENIOR SYSTEMS DESIGNER/ PROGRAMMER

Salary Scale: £4,882 to £5,857

Ref. No. 195 SENIOR **PROGRAMMER** Salary Scale: £4,408 to £5,218

Ref. No. 196 PROGRAMMER Salary Scale: £3,524 to £4,408

N.B. The above salaries are inclusive of London Weighting, Stage I and Stage

The Computer Centre is a modern purpose built self contained unit standing its own grounds. A pleasant working environment is further sided by for FLEXITIME system around a 36 hour week and adjacent canteen facilities.

Application form and job description available from the Regional Personnel Officer, North West Thames Regional Health Authority 82. Eastbourne Terrace, London W2 3QR (Telephone No. 01-282-801) Extension No. 261) quoting the appropriate reference nur date 21st October, 1977.

OS OPERATORS REACHING FOR THE TOP TAKE-OFF in NORTH SURREY

To £4,000

Can you honestly expect to receive planned technical training and a career path leading towards:

- Operations technical support
- * User liaison and trouble-shooting
- * Programming
- * Junior management

That is unusual in itself!

What is more interesting is the current large 370 environment, including Time-Sharing, Real-Time and a UK network.

To qualify for this prime position, you require:

* 18 months' OS experience (knowledge of HASP would be useful).

The installation, servicing a demanding Group, "hums" with activity. Shifts are broken into small teams, and promotional opportunities are first-rate.

Rewards include: 22 days' holiday, company products discount, sports and social facilities, and a challenging future with a major UK company heavily committed to data processing.

CONTACT: LONDON OFFICE on: 01-935 0671

REF: 77/10/2

SPECIALIST COMPUTER RECRUITMENT LTD

BIRMINGHAM 021-236 3781 FREEPOST freepost, Equity and Law House, 35-37 Great Charles Street Queensway, Birmingham B3 2BR

MANCHESTER 061-833 0676 FREEPOST

freepost, Corn Exchange Buildings, Corporation Street, Manchester M48BD

LONDON 01-935 0671 FREEPOST 6 freepost 6, 102, Blandford Street, London WIE 1JZ



SENIOR DATA CONTROL CLERK

ICL 1900 GIII Essex installation. Two years' experience. Days only position

Salary to £3300

UNIVAC 1106 OPERATORS

Four shift system preferably one year + experience on Univac, but will take any experience. W.2 installation.

Salary to £3500

PHILIPS MINI OPERATOR

experience. Lots of client contact, days

Salary to £3500

COMPANIES LOOKING FOR STAFF?

Telephone Avril Lively with details of

01-402 0933

SHIFT LEADER

Three years' experience with IBM 370/125 DOS/VS. Age immaterial. Three shift system - Surrey installa-

Salary £4300 + O/T

ICL 1900 OPERATORS N.W.1 installation require experienced

operators for a four shift system good promotional aspects for people with GII experience

Minimum £3000

OPERATORS

IBM 370/OS experience for Essex installation. Two shift system, eighteen months + experience

Salary £3000

ICL OPERATOR

[wo years] + expendede ICL 1900 GH must have knowledge of MACRO Central London company - days only

Salary £3500

DATA CONTROL CLERK

fwo years' experience in control shift

Salary to £3000

HONEYWELL **OPERATORS**

One year + experience and some ICL would be preferable. Three shift system for an Essex company. (Travel allowance.)

OPERATORS

Salary £3600

Salary to £4000

for two shift system

NW9 installation require 2903 or 2904 experience for their two shift system Preferably one year or more

Salary £3600

MINI COMPUTER **OPERATOR**

JUNIOR COMPUTER

OPERATOR

Six months + IBM 370/DOS/

GRASP/VS experience. Three shift

Salary £3000

ICL 2903 OPERATORS

system for SE1 company.

Eighteen months' + experience on any. small installation for a days only! position in Bucks.

Salary to £3500

IBM OPERATOR

The second secon

IBM 360/05 MVT HASP experience. Three shift system - two years experience for Middlesex company.

Salary £3750

STAFF **LOOKING FOR JOBS?**

more details of these and more ring

01-402 0933

AJK RECRUITMENT LIMITED (Emp. Agy.) 01-402 0933

26 Chilworth Street, Paddington, London, W.2





JBA

Technical Authors

West of London Our client seeks; WRITERS with several years experience in EDP ideally in a software environment; PROGRAMMERS with writing flair who want a creative satisfying job (career change); GRADUATES who may not have considered writing as a career. Ideal candidates will be highly personable and have an appreciation of real-time high level languages.

We also have vacancies in other areas offering excellent salaries and prospects.

Contact: Mike Creamer.

Software Specialists

London & Berkshire up to £6500 One of the largest software houses in Europe has vacancies for specialists to develop new software.

The projects include work for communications, operating systems, emulators and compilers and they require professional staff with 2 or 3 years experience in one of these fields. The client can offer a challenging environment and the chance to travel. Salaries are negotiable according to experience.

Contact: Jim Baker

Minicomputer Programmers

London & Home Counties up to £6000 Our client, a large international organisation with several locations around London, has opportunities for programmers to work on minicomputer systems. Applicants must have at least two years experience in the development of small real-time applications, preferably with a commercial bias although technical backgrounds will be considered.

Excellent salaries and career opportunities.

Contact: Jim Baker

Programmer/Analyst

West of London-U.S.A. up to £6000 This manufacturer of technical micro-based business systems seeks a presentable and qualified person with M/CODE and ASSEMBLER experience and a background of micro-processor (or mini) based systems, together with recent involvment of both terminal hardware and communications software. Work involves a lot of customer liaison, occasional visits to the U.S.A. and possibly, later, world travel.

Relocation assistance and excellent salary for the right person. Contact: Mike Creamer

COBOL Programmers

London (Central) up to £4500 Several of our clients are urgently seeking COBOL programmers, even with as little as 6 months post-training experience on any type of equipment. Positions offer excellent opportunities, variety of work, and definitive career progress to systems analysis. Prospects, good salaries, and interesting work for competant

Contact: Mike Creamer

Systems Programmer

people. Immediate interviews.

A well established and expanding manufacturer wishes to appoint a software programmer whose main responsibility will be for the development and enhancement of executives and telecommunications software. It is essential to have a sound a cademic background and have spent at least three years working in a systems programminglenvironment. Knowledge of a communication system would be an advantage.

Relocation expenses will be paid as necessary.

Contact: Margaret Stevens

SENIOR ANALYST

PROGRAMMER

SOUTH LONDON

Systems in the Music Industry

Mumps, RPG2 and Assembler

xercise team-leadership skills.

n complete confidence to:

ANALYST PROGRAMMER

Pye Records (Sales) Ltd., a subsidiary of the ATV. Corporate

now ofter 3 outstanding opportunities to join a small

enthusiastic toain working on REAL-TIME DATABASE

Our expanding applications currently use a PDP 11/45 under

Mumps-11 for orr-line order-processing and stock control

through 32 local VOU'r. The accounting systems are written

We require high-enlibre, self-motivated professionals, offers

least 2 years sound commercial experience and eager lo dovolop their careurs in a growth area of the computer note

The senior position demands 4 years systems expension including working with on-line systems, and the ability to

If your experience and ability qualify you for one of these positions, telephone now for an application form or sendy.

c. £5,000

c. £4,300

c. £3,800

For further information on any of the above vacancies please contact the appropriate consultant. If your qualifications do not match the above positions but you are seeking other opportunities please contact us anyway.

> JAMES BAKER ASSOCIATES International Personnel Consultants 16 Maddox Street, London W.1. Tel: 01-491 4478

Systems Engineer/ Computer Programmer

HAWKER SIDDELEY AVIATION

Based in our Aylonics Department at Dunsfold Aerodrome, the successful man or woman will be required to develop software concerned with real-time flight simulation nd on-line equipment control.

ideally, you will be qualified to degree standard and have experience with POP 11 using FORTRAN and ASSEMBLER under the RSX-110 Operating System

We will pay you a good salary and facilities include a Pension and Life Assurance Schame, a subsidised canteen and an active Sports and Social Club.

Please write or telephone quoting CW/78

The Personnel Officer Hawker Siddeley Aviation Limited Nr. Godalming Surrey Telephone: Cranleigh 2121

BRITISH AEROSPACE

HOLLAND:

Professional Programmers, Operators and Punch Girls required for lucrative contracts in the Amsterdam area. Details and C.V., plus phone no. if possible, to:

> OVABOND LTD. Weteringstraat, 29 Centruum, Amsterdam

Cobol Programming B3700 Woking

Our B3700 at Woking is linked with TC 3500 remote computers at our factories in Liverpool and Southampton and is used for a wide variety of applications. The expanding demand for our services means that we are looking for experienced people to join our team. The Management Services Department is responsible for O & M and Operational Research as well as computing, and there are opportunities to progress to the Business Analyst field. The Company is the UK arm of the B.A.T Group's tobacco interests and has a large and growing export business: we market

Applicants should have around 2 years COBOL programming experience, not ecessarily with Burroughs equipment.

FREELANCE PROGRAMMERS

For further details:

Telephone Les King up to 8 p.m. each evening or write to Modem Computer Services Ltd FREEPOST London SW11 6BR 01-228 2283

MODEM
Computer Services Limited =

£300+p.w. ICL 1900/2903 COBOL c £200 p.w. PDP-11 CORAL (Nov. start)

c £180 p.w. ICL 1900 COBOL Team Leader

c £180 p.w. BURROUGHS COBOL

c £180 p.w. ICL System 4 User Code

c £180 p.w. RPG II (any machine) c £160 p.w. RPG II PROGRAMMER

c £190 p.w. RPG II ANALYST

C £180 p.W. IBM COBOL/BAL

Salary circa £4,500; assistance will be given with re-location expenses.

To apply, please send details to :-

D. J. Smith, B.A.T (U.K. and Export) Limited,

Export House, Woking, Surrey, GU21 1Y8.

South London

Central London

North London

Surrey

Surrey

Berks.

London (all areas)

or, if you wish to discuss the position, telaphone WOKING (048-62) 76111 and ask for Keith Soden-Barton or



L.W. Tibbott ~ Personnel Manage. PYE RECORDS (SALES) LTD.

Mitcham, Surrey CR4 9UT Tel: 01-648 7000 RECORDS

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whom are dynamic
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The positions are challenging
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Excellent salaries complemented by big company banefits and relocation expenses where applicable make for a most extractive package. If you are looking for a real career opportunity, plot up (harphoris NOW and find out more.

Bristol (0272) 46085

Computer Recruitment

A division of ATA Selection and Management Services, recruitment consultants to Industry and Commerce since 1962. BRITISH AEROSPACE, RANK HOVIS McDOUGALL, VOLKSWAGEN LTD AND I.C.I. -What do these Companies have in common?

They all use **REDIFON**. COMPUTERS

These are just a few of REDIFON's clients who have found that it pays to invest in the highly versatile SEECHECK and REDICHECK SYSTEMS.
They have helped to make **REDIFON** one of the fastest-growing organizations in the computer business (1000% growth

Sales of the SEECHECK and REDICHECK SYSTEMS have broken all records this year and consequently more Territory Managers and Sales Support Personnel are required.

TERRITORY MANAGERS

c £14K p.a. + car

There are three main requirements for these positions: -Firstly, you must know the Computer industry inside-out. Secondly, you must be able to demonstrate that the sales track-record you have achieved over the past few years in hardware/systems has been good -- very good.

Thirdly, you mustn't be scared to earn big money. Some of the Redifon sales team are earning well in excess of £14,000 p.a. this

Successful applicants can negotiate their own initial earnings package including salary and guaranteed commission; choose from a range of new Cortina 1600Ls or run their own car (for which they are very well compensated); and benefit from a personally tailored training scheme.

REDIFON's expansion plans embrace the whole of England and Scotland. Applicants of either sex are invited to contact their nearest branch of ATA COMPUTER RECRUITMENT to discuss these positions in more detail.

230 Gt. Portland St., WIN 5HG 86 Cross St., M24LA

LONDON (01) 637 0781 MANCHESTER (061) 832 5857

BIRMINGHAM (021) 643 1994 Woolworth Building, 102 New St.

BRISTOL (0272) 211035 Econty and Law Building. 36 38 Baldwin St. B51 INR

sales support function is vital.

as a client consultant on Redifon's behalf.

EDINBURGH (031) 226 5381 Anglia House, 24, 26 Frederick St., EH2 2 fR

SALES SUPPORT PERSONNEL

The versatility of Redifon's range of equipment means that their

team of Systems Analysts, whose job is to dovetail the installation

of comprehensive systems into clients' existing commercial

Whether it's a small machine installation for a Bureau or a

multi-terminal site with a mainframe interface for Sales,

Distribution and Accountancy data generation the pre- and post-

Ideally you'll be an experienced Systems Analyst, probably a

graduate, and possess the creative flair and sales diplomacy to act

operations are faced with new and varied challenges.

CRAWLEY (0293) 514071 36 The Broadway.

Geophysical Data Processors Libya

AGECO is a national oil company operating in the Socialist Peoples Libyan Arab Jamahirya. We are primarily engaged in oil production from finding new sources to pumping the crude to local users and termini, and have a daily output of nearly half a

At present we are putting together a team of geophysical data processors, to be based at our head office in Benghazi, who are familiar with Command II or Phoenix system and routine. We invite applications for the following positions.

Senior Seismic Data Analyst

Applicants should have a University degree or equivalent with at least five years experience in field operations and an understanding of the principles of seismic interpretation. Job ref. No. GP/B1.

Seismic Data Analyst

As with the senior position, applicants should have a degree and a thorough knowledge of seismic work, but only three years experience are necessary. Job ref. No. GP/B2.

Seismic Computer Operator

You will be required to assist analysts in assembling data and will, on occasions, begiven the responsibility of running various programmes. Applicants should have had two years relevant experience. Job ref. No. GP/B3.

All these bachelor posts carry extremely high salaries on which you are allowed to remit some 90% of the net. The successful candidates will be required to work on the basis of one week off for every seven full weeks work, with the company paying the return air-fare to the UK at each field break. There are break. There are numerous other very attractive fringe benefits.

Please write, quoting job reference number giving details of age, nationality, marital status and a brief resume of career to:

ACECO

The Arabian Gulf Exploration Company (UK), 35-38 Portman Square, London WIH 9FH.



COBOL **PROGRAMMERS**

SURREY

to £5000++++

Commercial Union has recently installed its second 370/148 and needs to expand its team of young, lively programmers at the modern spacious offices in Whyteleafe (near Croydon).

If you have two or more years Cobol, there could be a place for you. Assembler, TP and Database experience would be helpful although training will be given.

Salaries are up to £5000 plus house purchase loans at preferential rates after a qualifying period, in approved cases.

Career prospects are excellent, and additional benefits include flexitime, free lunches, generous discounts on all insurances and much, much more.

Interested? Contact Geoff Mackenzie, Computer Appointments, 54/62 Regent Street, London, W.1 or telephone 01-439 6299;

Computer Appointments Register

Computer Personnel International

OPERATORS SHIFT LEADERS **DATA CONTROLLERS**

I have lots of extremely interesting jobs on file for Operations Staff from Trainee Operator to Operations Manager. If you are contemplating a change why not ring me — I may have the perfect job for you.

Particularly urgent are the follow-

OP IBM OP ICC (or large M/Frame) OP IBM DATA CONTROL	Berks Herts	to £350 to £350 to £410 London
DATA CONTROL	Central	London

OP UNIVAC (or large M/Frame) OP PDP pref.

London to £3800 London to £3500

Contact: MARILYN DAVIDSON

SKILLTRAIN TO THE USA

London Interviews: October 17th

Our clients from Connecticut are coming to London to recruit a team of D.P. professionals on a contract basis.

If, as an Analyst/Programmer, you can provide experience of O.S. Cobol acquired on large-scale projects in a manufacturing environment, we would be pleased to provide the ticket and an excellent salary package. The company is heavily involved in the use of database techniques, so expertise in this area would be an advantage; however, this is not essential.

To arrange an interview with our clients,

Contact: LINDA BENSTED

JUDGE WANTED

To be trained as a Personnel Consultant. Female or male, but must be a good judge of people their technical skills and personal characteristics.

A systems or programming background is desirable but most important is your perception, communication, ability, initiative and ambition.

Promotion of existing personnel to our New York office creates this

If you are interested in this position and would like to discuss it further,

Contact: MARILYN DAVIDSON

Real Time People



Computer Room People

WEST COUNTRY PROGRAMMERS

C. £4K + Asst. House Purchase

An exciting expansion and development programme has created three additional vacancies within a major financial institution located in the glorious West Country. A branch terminal network; database implementation; extension local TP, are the three development areas.

expenence of PL/1 is preferable but Cobol and/or

This very attractive package includes a realistic salary. assistance with house purchase, BUPA group scheme pension, life assurance, etc.

For an early interview urgently phone AB Executive on 0272 45085.

DE EXECUTIVE (Bristol)

RPG II PROGRAMMER

We currently operate an IBM system 3/12, applications cover marketing, manufacturing and finance, on-line systems are now being developed. Applicants should have 1-2 years' RPG It experience preferably on system 3. A knowledge of Bomp and CCP is desirable but not essential as relevant training will be provided. Write or telephone for an application form.

Personnel Manager 8RITISH TWIN DISC LTD. Knight Road, Strood, Rochester, Kent Telephone: Medway (0834) 77855

Paculty of Business (Barking Precinct) Department of Systems
& Computing Studies

Lecturer II Appointment

Applicants for this post should have recent commercial, industrial or teaching experience from among the sreas of information systems, database technology and operating systems. Appropriate academic qualifications required and experience of ICL 1900 series would be an advantage. (Ref. S/BE 121).

Salary Scale: Lecturer II £3,279 - £5,493 (Plus appropriate Government Supplements of up to a maximum of £492 and appropriate

Further details and Application Form from The Senior Staffing Officer (2) North East London Polytechnic

Closing date: 17th October, 1977.

North East London Polytechnic

IRELAND



SYSTEMS ANALYST/ **DPM DESIGNATE**

We are an International Pharmaceutical Company and have recently installed an ICL 2903.

We wish to appoint a Systems Analyst with considerable experience in the design and implementation of commercial systems, to develop and run our existing DP Department. It is envisaged that the suitable candidate will become Data Processing Manager within a short period of time.

An attractive salary will be offered and the Company operates a non-contributory Pension and Life Assurance Scheme. Relocation expenses will be paid where appropriate. Please write with full career details to:

> The Financial Controller ANTIGEN LIMITED Roscrea, Co. Tipperary



LONDON BOROUGH OF BARKING

BOROUGH TREASURER'S DEPARTMENT

Computer Manager

(Male/Female) Salery £6003-£6654 inclusive

plus earnings related Suppleme Applications are invited from suitably experienced persons able to communicate and motivate staff. The Council has an IBM 370/125 computer with 2 disc drives and 2 tape drives using RPG, and the ability to make full use of this installation together. Application from Borough Treasurer, Civic Centre. Degenham, Essex Talephone: 01-p592 4500. Closing date 28th October, 1977.

UNIVERSITY OF MAHDNITTON CRIPPS COMPUTING

NUMERICAL METHODS SPECIALIST

specialist in numerical methods is squired to jon an austring term whose sponsibilities include Reison with search wolters in the University, and he provision of an advanced numerical and statistical facilities on the Centre's inked ICL 1903T and 1908A system. The team also laises closely with simila teams in other universities and contributes to the NAG library

Selen's up to L4180 per ennum Further details and application forms retignable not later than 17th, October, 1977, from the Staff Appolithments Officer-University of Nottrigham, University Park, Nostingham, NG7 280 Ref. No.

COUNTY TREASURER'S DEPARTMENT

Computer Services Division

Systems Analyst GRADE AP4/5. £3861-£4615 inclusive of

Buppiements POST REF. T249

Applications are invited from persons with at less twolve months, experience of systems enalysis, or from experienced programmers with local government or commercial backgrounds and experience of the systems environment.

The successful applicant may expect to be The successful applicant may expect to use omployed upon a wide range of applications, on some occusions working as a member of a team and on others in a more individual capacity. He/she must, therefore, be capable of negotiating with the representatives of user departments at all levels and of being responsible for a development from investigation through to implementation. Closing date 22nd October, 1977.

Senior Software **Programmer**

GRADE 801/2. £4239-£4982 plus up to £520 p.ą, supplements. POST REF. T275

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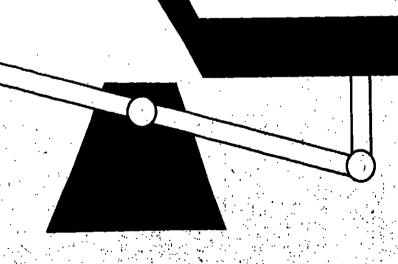
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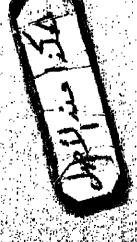
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call applications and the develop-ment of new applications in these areas. The computer is an ICL 1902A. Applicants should have at least two years' experience of COBOL, preferably on a 1900 series machine with knowledge of discs being an added advantage.

Salery will be in the range to £4.703 per annum according to qualifications and experience. Further particulars and an application form may be obtained from the Registra, The University, P.Q. Box 147, Liverpool L69 SBX, Quote refireV/6/3/GW

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Salary is dependent on experience and all the salassociated with a large group are available. Please apply giving cyrriculum vitae to

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and in this business, we know a lot of people: users, consultancies, bureaux - in fact, companies from all areas of industry are asking us for experienced personnel at all levels. With our contacts we can put you in touch with the right people regarding the job you're looking for. And at the moment, our clients are seeking more people than ever before. We could fill this whole space with brief, one-line specs; but rather than do that, we have briefly detailed a sample selection below. But remember, we have many, many more jobs than advertised here, in many different locations. So, you could take a lot of the hard work out of job hunting by giving us a call.

A small but very well known company located in a pleasant rural area currently runs 370 DOS/VS. They need an ANALYST/PROGRAMMER with 2 years' COBOL or RPGII and 18 months' commercial systems design. Work involves design and programming straightforward commercial systems. Salary is in a range up to £4500

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COBOL PROGRAMMERS and ANALYSTS are sought by this company currently in the process of changing hardware. Systems are presently being developed for the latest type of Honeywell machine and useful experience can be gained. PROGRAMMERS are welcome with: 12 months or more on any COBOL, and ANALYSTS should have 3 years' commercial systems design. Salaries are very good. up to £5000 for Programmers and to £6000 for Analysis.

CONTRACTORS

We have a fairly continuous requirement for experienced freelance PROGRAMMERS and OPERATORS. If you are currently free, or will be so shortly, please phone us for

We have a company situated in NE Essex who have requirements for a variety of people. They are using a large IBM OS configuration running both batch and TP applications and can offer a valuable experience in various fields. On the PROGRAMMING side, they would like us to find Programmers with 1 year or more in an IBM-type Assembler or PL/1. Assembler people will be given the opportunity of learning PL/1 or perhaps joining a software group at a later stage. Opportunities to diversify are really good. They also need experienced ANALYSTS with 3 years' commercial systems design, and ideally some IBM knowledge. If you have experience of financial-type applications, so much the better. In addition to an attractive safary, the offices are new and in a pleasant part of the countryside.

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small consultancy with an extensive workload needs capable RPGII PROGRAMMERS who enjoy the non-routine and well-rewarded life consultance has to offer. There are also vacancles for IBM COBOL people. Variety of work, salary to £6000 p.s. and a COMPANY CAR after a suitable period make this an attractive proposition.

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LONDON INTERVIEWS OCTOBER 10-13

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This unique appointment requires a person with wide programming experience and the ambition to develop supervisory management skills

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[†] Bechtel, a major international engineering and contracting company, makes extensive use of DP techniques throughout its perations and now wishes to appoint an experienced Termin perator, man or woman, at its Hammersmith Headquarters

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OUR CLIENTS

A large manufacturing company located in Connecticut, currently using 370/158s under VM3, OS/VSI & OS/MFT, with an IMS database, and communications using CICS. They are undertaking major systems development in commercial, management information, personnel and production control areas.

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If you are a programmer, analyst-programmer or analyst with the kind of background indicated above, and are interested in a contract in America. phone 01-836 8411 WITHOUT DELAY for more information and to register

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to work on support of DMS 1100 database systems software. Experience of an Assembler language is essential; some experience of database systems.

Programmers

to work on operating systems support. Univer experience preferred. Consideration will be given to candidates with experience of similar large systems or those with at least two years' experience in an Assemblar language but limited operating systems background.

We offer a competitive salary; other frings benefits include non-contributory pension acheme, subsidised restaurant and first class social/sports facilities. Please write giving brist details of size experience and qualifications, quoting reference PPCSS/Fy to The Manager, Cantral Recruitment. The British Patroleum Company Limited, Britannic House, Moor Lane, London ECSY 381

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Our Client thinks of it more in terms of shift management than a straight leadership. That means you have to know the work, make your own decisions and be the main link to a varied cross section of users.

You will have ICL 1900 experience using George II or III and will have accepted three-shift working as a way of life. On your shift you will organise the work of 3 to 4 people and probably won't push any buttons yourself. But you will take the responsibility and you should see yourself as the users' representative in the computer room.

Current equipment is ICL 1903T with 128K and a wide range of peripherals but expansion plans to install 2900 equipment mean really good career prospects for the right people.

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The next regional feature to appear within the Classified columns of Computer Weekly will be on October 27th when career opportunities in the North will be highlighted. To advertise in this important feature contact:

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on 061-872 4211 or MARK WILLIAMS on 01-261 8019

ANALYSTS & PROGRAMMERS

We've come a long way since then.

Wondrous though the business seemed in 1922, when the BBC first began radio broadcasts, our industry was of course, in its infancy. But progress has been rapid. Today, we have a dynamic, technological and creative nological and creative corporation, evidence of which can be viewed daily, in colour, on that



Find out just how far, at our next informal interview. between 5 pm-8 pm of

complex piece of equipment in your living

And as with many other contemporary operations, the computer has come to play a major role. With the BBC Computer Unit there are wide ranging applications in television, radio, engineering and finance, and now, we need more young analysts and programmers to help us develop new TP, on-line and data base systems for our ICL 2960.

You'd be working in Central or West

London, but we'd like a chance to talk with you first, on one of the following evenings.

MONDAY, 10th OCTOBER between 5 pm-8 pm of BBC Television Centre, Wood Lane, W12 (by White City tube station) MONDAY, 17th OCTOBER

BBC, 252 Western Avenue, Acton, W3 (Gipsy Corner - nearest tube station North Acton).

We expect to meet young people of outstanding potential. And we can promise that you'll get a very clear picture of our career opportunities. (New salary increases are effective from 1st October 1977.) If you can't make either of these dates, please write to:- Appointments Department, BBC. Broadcasting House, London WIA IAA quoting reference 77.G.497 .CW2 or phone 01-743 8000, ext. 4752.

BBG

Railway Automation REAL-TIME PROGRAMMERS

We are engaged in the design, development and installation of sophisticated railway signalling equipment. In order to satisfy our planned growth, we are seeking to expand the microprocessor programming function within the Electronic Systems Department by the addition of real-time programmers at various levels.

They will be engaged on a wide range of activities, including the development of train describer software using mini and micro computer systems. To enable these activities to operate successfully, the Department is responsible for the Company's in-house computer facilities.

Applicants should preferably be qualified with a Degree / HNC in a relovant discipline and should have some experience of l-lime programming within a systems engineering environment.

The posts will be based at Borehamwood, but will include opportunities for short periods of travel at home and abread Minactive starting salaries are offered dependent on age and experience, with good promotional prospects. Assistance w

Applications including career details from either sex will be treated in strictest confidence and should be addressed to:



B. T. Bending, Chief Programmer GEC GENERAL SIGNAL LIMITED Elstree Way, Borehamwood, Herts. Tel: 01-953 8211, ext. 3521

THE UNIVERSITY OF LANCASTER

SENIOR SYSTEMS PROGRAMMER

Applications are invited from either ax for the post of Senior Systems Frogrammer with the Computer Services Department. This is a senior post and the appointse will be expected to provide leadership in the implementation of operating systems in use by the department and to edvise on future developments.

The present computer is an ICL 1905F running under GEORGE 3 and applicants must have proven experience in GEORGE 3, preterably in a university environment. An important part of the dutes will be assistance at inter-university level in the development of a computer network finking five morth-west universities. Exprenges in contributions acquipment and software would be advantageous.

isiary on the scale £5219-£4655,

Further psychology may be objected burding references L 1/A) from the Establishment Officer, University House, Beiffigs, Laricester LAT 47W, to Officer, Spekations (six caples) haming dress reserges, about the tipe that AB Optober, 1977.

CHARING CROSS HOSPITAL DEPARTMENT OF MEDICAL COMPUTING SCIENCE

COMPUTER **OPERATIONS MANAGER/ESS**

Selery Scale £5410-£6487 We have a vacancy for a Compute Constitute Manager/ess to take charg

Operations Manager/ess to inneutral of our Operations Section, running of 448k byts Xarus Sigma 6 computer of a two-shift basis, providing on-linearyices to a major hospital. envices to a major hospital.

The person appointed to this key post will be responsible for the day-to-day numing of the machine and its network of 30 terminals. The successful applicant will liste with a wide variety of hospital staff as well as with computer and terminal melintanance commenters, to guarantee the high level of service necessary in a health care environment. The post also carries a number of administrative responsibilities configured with the extending the service management of the service necessary.

NORTHERN DIVISION

COMPUTER LIAISON SYSTEMS & CONTROLS **ASSISTANT**

Salary: £4,149-£4,479 (+ up to £520 p.s. supp

Based at Carlisle, you will be responsible for 15 development, data control and all matters related application of computer services on our remote terminal will also help provide accounting services for the division.

Applicants should have broad experience in c

Application forms from: The Divisional Admitted to the Co. Its Officer, North West Water, Northern Division 50, 18 36, Holme Head, Carlisla, CA2 BLA (Tel Called St) ext. 279).



MANAGEMENT & **EXECUTIVE SELECTION**

telephone 01-637 9611

SYSTEMS ENGR. £6K **WEST LONDON**

A rapidly expanding mini/communications manufacturer is looking for a Systems Engineer with strong Assembler programming ability. He/she must have a good knowledge of IBM communication systems and enjoy the customer contact and troubleshooting environment. Any additional experience of minis, analysis or a high level language would be a useful extra. The growth potential of this company ensures your career development.

Contact Peter Gorton

Contact Pam Quinlan

LECTURER C £5K **HERTS**

Rewarding work in terms of personal involvement and remuneration are offered by our client, a small but thriving mini computer manufacturer. They require someone to lecture to both staff and customers, at their brand new premises, just 15 minutes by train from central London. They offer a wide variety of courses including Assembler level programming, operator training and computer appreciation at management level. Of equal importance as assets of the job are a background in programming and the right personality outgoing, able to communicate ideas easily and hard working.

SALES

Total Earnings £10K

London/South West/Manchester/Midlands

Word processing is now firmly established and recognised as one of the major growth areas of the industry. This reputation has been assisted by the rapid development of equipment from automatic typewriter to disc based mini computers. The leading supplier in this market is now offering the opportunity to partake in this success story. Suitable applicants will have had extensive computer experience and a proven sales record gained in selling to the commercial sector of the market, or to the government.

Contact Faye Ogilvie

to £7K **SENIOR ANAL ESSEX**

A top flight senior analyst is required by our client, part of a worldwide organisation, to lead a small team of people in a Production Control project. A strong programming background in RPG II would be a distinct advantage, plus 2-3 years' analysis experience in a Production Control environment. The top salary is only applicable to those who can show the required experience. However, candidates with a suitable analysis background would be considered.

Contact Rowland Middleton

Suite 201/6 Albany House 324 Regent Street London W1R 5AA 01-637 9611

MANAGEMENT& EXECUTIVE SELECTION

Computer Recruitment division of ATA Selection and Management Services, recruitment consultants to Industry and Commerce since 1962.

SALES EXECUTIVES

VRC/DISK BASED SYSTEMS £10,000 to £15,000

An outstanding growth record over the last 18 months, coupled with concentrated advertising and promotional campaigns for their new disk based systems has created additional sales territories throughout the U.K.

As manufacturers with an enviable user base, opportunities for experienced, successful VRC/MINI sales executives are excellent. A significant number of our client's sales-force will earn £15k this year, and consequently they are to offer guarantees of up to £7000 P.a., with the knowledge that 1st year. income should exceed £10,000. An above average tax free car allowance is paid (c£1200 p.a.), and the usual fringe benefits apply.

Please contact your nearest office for further information . . . a new territory can be formed in most areas for above average applicants.

230 Gl. Portland St., WIN 5HG 86 Cross SL, M24LA

LONDON (01) 637 0781 MANCHESTER (061) 832 5857.

BIRMINGHAM (021) 643 1994 Woodworth Building, 102 New St.

An immediate and confidential interview can be arranged by contacting your nearest branch. Crawley 0293,514071 London 01-637 0781

SALESMEN/ANALYSTS

Do you have good experience of the Computer world?

Process the Word! — c£9,000

If so why not redirect your expertise towards the Word Processing Market . . . a true growth erea in the U.K.

Our client has a long and successful track record within W.P., and, as a stable,

Marketing a range of sophisticated high cost equipment to both commercial

and industrial users the successful applicants (male/female) will be aged

25/40, and be resident in London or surrounding Home Counties. Ideally

experience of computer sales is required but analysts or 0 & M personnel will be strongly considered. Remuneration is by way of basic salary, guaranteed sarnings and commission. Quote in the 1st year is £6,500. However the

above average will be capable of securing earnings of £9,000. A Company

sected organisation are able to offer excellent training, allied to secure long

BRISTOL (0272) 211035 Equity and Law Building. 36/38 Baldwid St., B51 INR.

term and lucrative employment.

saloon car and expenses are supplied.

- EDINBURGH (031) 226 5381 Angla House, 24/26 Frederick St. EH22R

CRAWLEY [0293] 514071

36 The Broadway,

Operators to Shift Leaders £2,000-£4,000 (incl.)

LONDON & HOME COUNTIES We have many vacancies covering all types of machines and locations. Some firms will retrain from one manufacturer to another. Remember these positions are for shift working only. Hurry within a shift working only.

Time Sharing **Programmers** to £6.000

C. LONDON
If you have had time sharing experience
involving the use of FORTRAN, BASIC or
ASSEMBLER, then we have four nationally ting job in pre- or post-sales support. Some offar geлerous bonus schemas. CW40/2, Michael.

Successful Salesmen to £12K quota earnings

We now have ten different firms for both we now neve ten dillerent firms for both hardware and systems only companies who are analous to meet auccessful seleamen in this industry. They must have previous relevant small systems experience (some VRCs will be considered). All firms have bonus schemes and cars or car allowance. Most position in S.E. England, but 2 in Midlands. CW40/3, Michael.



DATA EXPRESS HOUSE PROSPECT PLACE **HEATHFIELD TERRACE** CHISWICK W4 3BR Recruitment Consultants

01-995 3883 or 01-958 6138 evenings **Junior Programmers** £2.500-£3.750

Only one year's experience? Then you are in great demand. We have a large selection of first-rate companies who need people like you CW40/4, Annette.

Mini Computer **Programmers** to £6.950

U.K. Your experience is required now. A very targe number of variancies are registered where a knowledge of Assembler or communications experience is essential (VRC programmers would also be considered). Opportunities exist in S.W., N.W. or W. London, Surrey, Herts. and Manchester in this exciting and rewarding field. There has also been registered some oversess posts to people with 5 or more years

Contract Programmers to £190 p.w.

U.K.
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RPG II & IBM COBOL under DOS or OS for C.
London. PL/1, OS or CICS, PDP/11 or good
IMS for verious locations for 3 months plus.
Also IBM vecancies in GERMANY, BELGIUM &
HOLLAND. Ask for the Contracts Officer on
O1-995 2236.
CW40/R. Milchest

Systems Consultants £6.000-£9.500

CENTRAL LONDON Seven large well-established consultancies Seven large well-established consultancies wish to recruit systems people with all-round experience on third generation equipment and the right personality to deal with clients who require a first rale service. Technical communications consultants are also required where in-depth implementation experience of IBM or ICL T/P message switching networks etc. are assential Excellent fringe benefits and prospects.

prospecia. CW40/7, Michael.

NORTH WEST AREA SALES MANAGER

On quota earnings circa 9K + company car

Our Clients manufacture and market a highly competitive range of computer systems, fully supported by comprehensive software and engineering facilities. They are expanding the commercial division of their operation in the North West of England, and therefore seek candidates with proven sales experience of commercial disk-based systems, to develop the Client base in the North West.

Earnings between £9,000 - £12,000 should be achieved by ambitious candidates. combined with management responsibilities as the business base develops.

For further details:

CONTACT: DAVID WADE ON: 061-833 0676

REF: 77/10/5

SPECIALIST COMPUTER RECRUITMENT LTD. BIRMINGHAM 021-236 3781 FREEPOST

Freepost, Equity and Law House, 35-37 Great Charles Street Queensway, Birmingham B32BR

MANCHESTER 061-833 0676 FREEPOST Freepost, Corn Exchange Buildings, Corporation Street, Manchester M48BD

LONDON 01-935 0671 FREEPOST 6
Freepost 6, 102, Blandford Street, London WIE 1JZ

Computing Services
Association







European Org: nization for Muclear Research Organisation Européense pour la Recherche Musicaire

CERN, a European Research Laboratory situated near Geneva, has

COMPUTER CONSOLE **OPERATORS**

in its central computer service. This is at present based upon CDC 7800. 6500, 6400 computers and an IBM 370/168 system.

The goals involve shift work including weekends and public holidays.

Candidates should have successfully completed their education to at least. GCE "A" tevel for equivalent preferably including computer science or other scientific subjects. At least two years' experience of computer operation including some IBM experience is desirable. A knowledge of French would be useful.

Head of Personnel, CERN, 1211 Geneva 23, Switzerland Quoting the reference DD-CO-77/1

COMPUTER **OPERATOR**

- NEAR OXFORD CIRCUS

Commencing Salary (including Shift Allowance) up to £3,850 p.a.

We are seeking additional staff with at least 18 months experience of George 3 and/or OS/VS1 on systems similar to

Our equipment includes an ICL 1904S using George 3 and MOP, on ICL 1904S using George 2 and Maximop, an IBM 370/145 under OS/VS1 (to be replaced by a 370/148 by the end of the year).

Valuable fringe benefits including FREE TRAVEL on London Transport services, excellent aports and social facilities and If you are interested and would like further information of

telephone the Senior Operations Supervisor on (01) 637-9144, or write to Staff Appointments and Developments Officer (Ref. 866/G), London Transport, 55 Broadway, London SW1H OBD.

CONDON TRANSPORT

Analysts and Programmers £6,500/£5,000 Oil Industry

Dowell Schlumberger offers specialist technical services to the oil industry world-wide. Part of a major international group, it has a small but powerful computer centre in London. The configuration is an IBM 370/125 256K (which should shortly be up-graded) with local and remote VDU's. Applications are a range of management and financial information systems. Some are already highly sophisticated; others need to be devised and implemented to meet the demands of user departments throughout the world.

These are opportunities for competent Analysts and Programmers to move into a live environment offering considerable challenge and job satisfaction, as well as career progression. Analysts must have big-company TP experience under DOS/VS, and Programmers must be capable of working as expert members of a small team. Salaries will start at £6500 for Analysts and £5000 for Programmers. There are excellent continental standard benefits including an annual

e you firstly to telephone (01-629 1844 at any ti to ASL Recruitment Advertising, 17 Stratton Street, London, W1X 6DB, for further information and an application form, quoting ref. FY. 7650

> DOWELL Schlumberger

SITUATIONS WANTED **PROGRAMMER**

(HND in Computer Studies with Distinction)

seeks suitable positions abroad.
Thorough knowledge of COBOL.
PLAN, FORTRAN, BASIC, FIND and FILETAB, Experience be 64 K ICL 1802T operating under GEORGE If and MAXIMOP. Alsohave recognised commercial/management qualification and appelience.

initial safety in the range £2926 to £3365 plus london Allowance of £450.

BURBECK COLLEGE **CORAL OR FORTRAN** PROGRAMMER **PROGRAMMERS**

required in West London and Hants. The work involves the design and implementation of strentific data enalysis programs on mini computers. Applicants should be capable of working largely on their own initiative:

Reply with full details of programming experience and salary required to: 27 High Street, Saffron Welden, Essex-CB10 1AT

Programmer/ **Analyst**

McEvoy Oilfield Equipment manufacture wellhead asset and associated equipment for application in oil and as field throughout the world. The Company is pleasantly situated the Cotswolds, between Stroud and Naisworth and curety and Naisworth and curety.

We now require a Programmer/Analyst to join a small DP toam and roport directly to the Information Systems Manager

Applications of the recently installed D.P. function are primarly involved within the manufacturing control area including data base creation, inventory control and material requirements placening.

Applicants should proferably be educated to HND/Degree level, and must have had at least 2 years' programmy experience (preferably with ANS cobol and/or 8AL) and a min. Im of 1 year's analytical experience. Knowledge of BOMP/DBOMP or CFMS will be advantageous as world OS/JCL experience. OS/JCL experience

Fringe benefits include relocation expenses where approx

Letters of application should be brief but include age prist position and salary. A comprehensive application form in ubsequently provide full scope for details

Applications should be marked "Confidential" and addressed to The Personnel Manager, McEvoy Oilfield Equips Woodchester, Stroud, Glos. GL6 5EY:



RPG II



MYRIAD APPOINTMENTS LIMITED

Computer Personnel Consultants

ANALYST/PROGRAMMER RPG II

DEVELOPMENT

A major financial company with offices throughout the world is seeking an Analyst/Programmer to develop an unusual and interesting application using distributed minis, including IBM System 32s, linked to their main IBM installation in the City.

Joining a small team, the Analyst/Programmer will be able to partake in all issues of the vistems development to successful implementation.

Excellent prospects of career progression are offered to candidates with sound RPG II programming experience. Knowledge of another language and on-line processing would be an advantage although training will be provided where necessary.

Excellent conditions of employment include Non-contributory Pension, BUPA, LVs and four

PROGRAMMING CONSULTANT 3-4 years' COBOL

W. LONDON

UP TO £6500

We are seeking a Programmer or Analyst / Programmer keen to accelerate his/her career by a move to Team Leading. You will be expected to play a major role in the development of new systems, being responsible for the programming and implementation of projects from

The person appointed will have in-depth knowledge of COBOL with an appreciation of commercial data processing. Previous supervisory experience is not essential although a commitment to maintaining high standards of coding and documentation are required.

the exciting prospects of allowing your career and responsibility to grow with the Company.

The offices are conveniently situated to both underground and main line stations.

The Company, a subsidiary of a major international group, offers a friendly environment with

SYSTEMS ANALAYST/ PROJECT LEADER

S.W. LONDON

This is an ideal opening for an experienced Analyst to lead a project team of seven development staff installing a variety of applications on our client's new main-frame.

The Systems Analyst will hold responsibility for planning and scheduling complete systems installation and ensuring that team members adhere to standards and obtain the maximum use of modern techniques using the latest equipment available.

Candidates should have implemented at least one system from inception to completion and be capable of leading a project team.

This is a permanent appointment in a progressive and expanding organisation offering the successful candidate an excellent career path.

Benefits include Pension Scheme, Flextime, four weeks' holiday and LVs.

PROGRAMMERS

CENTRAL LONDON

FROM £4000

If you are able to offer from around twelve months' programming experience in either COBOL or an assembly level language you may well prove a suitable candidate for one of the current programming positions in our client's installation.

The department is currently undergoing a programme of expansion and can offer you the opportunity to become involved with a variety of interesting projects.

New members of the department will be attached to project teams where they will gain valuable experience working on both the developing of new systems and the maintenance and enhancement of existing systems

The Company offer a very competitive salary range which is further enhanced by a comprehensive benefits package.

> Please telephone for a confidential discussion or write to: 30 Fleet Street London EC4Y IAA 01-353 5868

r client, a well known name in the motor industry, have assigned us to recruit a number of people for their

ONE PROGRAMMER SUSSEX

expected that candidates have around two years. COBOL experience. Preferably this should have been gained on ICL 00 equipment although this is not an assential regulrement for the position.

department is currently developing now on-line systems in the area of Accounting, Distribution and Stock Control. THIS VACANCY IS AIMED AT PROGRAMMERS WISHING TO MAKE AN EARLY MOVE INTO SYSTEMS.

£4000 Neg. + overtime

Candidates for these positions should have the ability and expanence to organise, develop and control shifts consisting of three people per shift. Saveral years' operating experience on ICL 1900 equipment is required plus the ability to work in a demanding and lapidly expanding department.

THESE TWO POSITIONS BOTH CONTAIN EXCELLENT OPPORTUNITIES FOR REGULAR PAID OVERTIME.

TWO OPERATORS Salary neg.

Iwo lutther operators are also required with a minimum 18 months to 2 years GEO II experience. hase positions would later lead to candidates with the ability and potential to become shift leaders. REGULAR PAID OVERTIME WOULD BE AVAILABLE FOR BOTH THESE POSITIONS.

Our client has an excellent benefits package which includes: ---CAR PURCHASE SCHEME - FLEXIBLE WORKING HOURS (FOR THE PROGRAMMING VACANCY) - STAFF RESTAURANT - FOUR WEEKS



Interview ring STUART WINPIELD OF 01439 9817/8 or write 2 GREAT MARLBOROUGH ST

DISTRIBUTED PROCESSING SYSTEMS

SUPPORT MANAGER

to £7.000 + Benefits

MIDLANDS and LONDON

The modish concept of decentralising computing power among small remote precessors has been the essence of this clients market strategy for some years now. Their not inconsiderable reputation as one of the leading manufacturers of mini computers for the commercial market place is based upon the technical performance of a first-class product range, backed up by a thoroughly professional support team.

They are looking for two experienced and mature people to

strengthen the support groups. These positions require experience of a support function within a manufacturer or systems house; the ideal candidates will have had some exposure in a team leading/project managing role. Experience of intelligent distributed systems of real time minis is desirable.

One position is BIRMINGHAM based and carries responsibility

for pre- and post-sales support in the area.

The other position is LONDON based and will concentrate on pre/post sales support to Major Accounts and Government.

hutchin/on-/coggin/

10 Dover Street London W1X 3PH Telephone 01 499 4501

TID Computer Recruitment

A division of ATA Selection and Management Services, recruitment consultants to Industry and Commerce since 1962.

PROGRAMMER/

various plants in Yorkshire.

able to offer subsidised canteen facilities.

TRAINEE ANALYST

WEST YORKSHIRE to £4,500

experience preferably gained in a commercial environment.

Our clients, the Foundries Division of a Major International Engineering Group, require an additional Programmer/Trainee Analyst with solid COBQL

It is envisaged that the successful applicant will move on to Systems Design

after approximately 6 months from joining the Company. He/She will then be

involved in the recommendation, design and implementation of Systems at the

The salary is negotiable to £4,500 and generous relocation assistance is

available. The modern offices are easily accessible and the Company are also

PROGRAMMING BUSINESS SOLUTIONS Initial Salary Scale £4,000 to £4,950 + £600 tax free expenses + mileage allowance

Our clients are market leaders in providing World Wide Information Networks for the Manufacturing, Financial and Commercial Sectors of Industry. There is an immediate requirement for imaginative programmers based in Manchester and Birmingham who can demonstrate the following achievements in their careers to date.

- a) A degree, preferably in a related subject
- b) Active involvement in Business and Management Systems
- c) Knowledge of FORTRAN and possibly additional languages
- d) Experience of Interactive processing
- e) Concepts of Databases

An assumption that we are seeking the elite would be correct but if you are searching for a position which can reward your initiative, business acumen, and mental agility in terms of stimulation, rapid career advancement and early salary reviews, then telephone your nearest office for further details in complete

Manchester 061-832 5857. Birmingham 021-643 1994.

LONDON (01) 637 0781 230 Gt. Portland St., WIN 5HG 86 Cross St., M24LA

MANCHESTER (061) 832 5857

BIRMINGHAM (021) 643 1994

Woolworth Building, 102 New St., B. 4HO

BRISTOL (0272) 211035 Equity and Law Building, 36: 38 Baldwin St , B51 INR

EDINBURGH (031) 226 5381 Anglia House, 24 : 26 Frederick St. EH2 2JR

Contact Manchester office for further details. 061-832 5857.

CRAWLEY (0293) 514071

Programmers for

a national network of front end mini processors within teleprocessing to differ and has novelnked center them.

Out New Zealand, Idented programmers are required this major expansion. One Location—Wellington City

Communications notwork experience desirable

Systems Programmer

(IBM 3600 Terminals)

Thorough knowledge of internals of IBM 3600 terms.

Experience using IBM equipment for un-line applicates

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Assistance with accommodation and air fares to

Reasonable excess air baggage allowance.

Please apply in strict confidence, in phritograph: or telephone for application form

Top salaries for New Zealand.

New Zealand.

HERTS

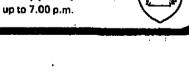
NORTH LONDON

PROGRAMMERS - £3,500/£5,800 ANALYSTS - £4,000/£8,000

Haymarket Computing act as a DP recruitment consultancy to 35 companies in the Herts/North London area and we are currently anxious to interview Programmers and Analysts on behalf of clients located in Cockfoaters, Borehamwood, Edmon-ton, Barnet, Watford and Enfield.

Applicants will be invited to look through our client register which details the companies, positions, salaries, prospects, etc., so that we may jointly

for more information ring HAYMARKET COMPUTING LTD. Tel. Cuffley (Herts.) 4130



KENT COUNTY COUNCIL

Computer Operators

To £2775 + 17% Shift Allowance and £466 Salary Supplement

Two posts to join an operating shift running two ICL 1904S Computers. Shifts operate on a 3-shift rotating basis, 37 hours weekly. Experience in ICL George 3 and communication terminal links an advantage.

Assistance with relocation expenses in approved cases.

Application form, returnable by 21st October, from the Data Processing Manager, Computer Unit, West Malling Airfield, West Malling. Phone (0732) 845846, Ext. 286.

Advanced Software-Belgium

Due to increasing commitments for an established product, a limited number of opportunities have been created for Software Engineers in existing and new

These positions would provide expertise in:—

Real Time Software Engineering Microprocessors Communications

Structured Programming

or'phone 01-368-1234 Ext. 2385

We are looking for experienced programmers, proferably with some existing expertise in the above fields who wish to extend their skills by contributing in a

Following a period of 'on the job' training in Belgium, there will be opportunities to remain for up to two years before being relocated back to STC. An extensive range of benefits will be available for staff while working abroad

and these include the expense of removal and relocation both to Belgium and back to the U.K.

For further information please write, giving brief career details to: T.C. KERR, Switching New Products Division Standard Telephones & Cables Limited, Oakleigh Road South, New Southgele, London N11 1HR



CAPITAL APPIS. LL

FORTRAN,

Standard Telephones and Cables Limited

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Urgently required in many atens CONTRACT COBOL **PROGRAMMERS** for IBM, ICL and UNIVAC COMPEX COMPUTER SERVICES LTD. 84 High Street

637 5551 day: 445 0468 eve.



PROGRAMMERS ICL OPERATORS G2 and G2 + RANGE UP TO £5,000 **ON-LINE SYSTEMS**

DATABASE DEVELOPMENT **WEST LONDON**

Further development within our climit's data processing centre has created two openings for self-mativated Cobul programmors to sestes with the development of new ON-LINE systems and DATABASE development. Although systems and databased on University has been also development on the systems and development on the control of the self-matical particular on the control of the country that the process of the control of the cont

HOME COUNTIES (WEST)

Edmund Howard's Client Alburg

£3,900 rising to £4,300 after one year

Here is an opportunity to join a leading international organisation whose products are brand leaders in

Currently they require additional operations personnel with at least 18 months' experience of G2 or G2+. Systems are based on an ICL 1903T running under G2+ with on-line facilities.

The D.P. Centre is spacious and well planned, with an excellent working atmosphere. The company operates a policy of internal promotion. Other benefits include four weeks' annual holiday, a subsidised restaurant and generous discount on company products. For further details please quote

SYSTEMS ANALYST PROJECT LEADER

SURREY

We are recruiting on behalf of a large independent public organisation who operates as financial, professional and commercial agent for overseas government and public authorities.

ANALYST. Candidates should have sound experience in SYSTEMS ANALYSIS along with four years' programming encompassing on-line systems. A knowledge of Honeywell equipment would be

PROJECT LEADER. Candidates' experience should be similar to that of the analyst appointment (paragraph above) coupled with management and leadership skills having a minimum of five years' overall data processing experience. Currently systems are Honeywell 1200 based progressing to a Honeywell level 66 next years. For further details please quote CW 158.

COMPUTER SCIENTISTS FOR BASIC SOFTWARE DEVELOPMENT **WEST OF LONDON**

SALARY UP TO £6,500

Further expansion and development within our client's European Softwere Development Group has created opportunities for Computer Scientists to be involved in the design and implementation of compliers, I P monitors and data base systems. Candidates should possess systems adhward development expansions which will probably have been gained with a Computer Manufacturer or software house.

necessory beckground, expenence and qualities. Senior candidates can e-pect to assume project leaderable responsibility in the not too distant future. For further deating please quote CW 158.

Edmund Howard & Partners

Computer Personnel Consultants

5 Brighton Road, Surbiton Surrey Telephone (11-399 9183, 38 Grafton Street, Dublin Telephone 775 756,

DON COMPUTER SERVICES LIMITED **ICL PROGRAMMER**

c. £3,300

A new position has been createst for no EXPERIENCED PROGRAMMER, due to the increasing workload of the Company which handles the computing requirements for the George Bassett Group of Companius.

The apportunity to gain experience during the development of on-line systems should interest any individual desirous of enhancing their carsor prospects.

EXPERIENCE REQUIRED

Mini-Computer Programmers Proven experience in mini computer programmig. A minimum of 2 years using ICL Cubol in a communicial environment working under GEORGE 2 operating systems. systems or assembler programming.

Experience in programming minis used as front ends.)

Desirable experience would include COMMS MANAGER and real-time working.

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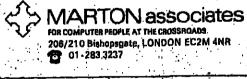
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salesman TO many computer people outside of selling, a salesman is a peripheral employee who intersperses the indulgences of expense account living with the pleas-

THE SALES

BIT

The ideal

ures of articulate deception. He is a ruthless exploiter of the uninformed, motivated only by sales commis-sion. He is brash, insensitive and a born survivor. He is overpaid and underworked. He is a speculation, acceptable only within an expand-

ing market.
On the other hand, the salesman may see himself as a pioneer at the "sharp end" of a company which must expand or die; a solitary traveller who must balance the insatiable demand for expansion with the frustrations of customer dissatisfaction and an inadequate product portfolio.

He, unlike other employees, is measured by his day to day performance quotas, targets, salesplans, commission structures, and reporting systems.

He must keep a level head despite the financial and emotional boost of success and the cost and condem-nation of failure — while the product, it seems, goes on for ever. At best he is yesterday's hero.

Both these descriptions are emotional and extreme, but it is difficult, if not impossible, to specify the qualities and aspirations of the successful salesman or

even saleswoman. The ideal computer sales-

man is unlikely to exist. He should be industrious, sensitive, creative, objective, perceptive, attentive, self-disciplined, self-motivated self-organised, self-analytical, intelligent, articulate, fit, politically

He should have commonsense, initiative, tenacity, courage, ambition, pro-duct knowledge, market

knowledge.
While the accumulation of all these attributes would perhaps be a suitable qualification for becoming the New Messiah, they are qualities which are regularly called upon within the sales and marketing situation. For this reason even the very best salesmen fall

from time to time. However, there are some basic qualifications, without hard work, common sense, product knowledge and personal fitness the salesman is impotent; and without the salesman, so is

the company.
This weekly column is for sales and marketing people.
It will be predominantly devoted to discussions on random topics related to the basics of selling and mar-

keting Hopefully it will provide a few hints and reminders but also act as a forum for comment and a clear, ing house for sales and marketing problems of all

Much of what will be salt has been said before, and what is new will be commonweather the monsense anyway. But like the man said, "I know you know it but do you do it?"

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